JIRA DOCUMENTATION

1. JIRA Documentation 10
1.1 JIRA 101 10
1.2 JIRA User's Guide 17
1.2.1 JIRA Concepts 19
1.2.1.1 What is an Issue 19
1.2.1.2 What is a Project 20
1.2.1.3 What is Workflow 22
1.2.2 Getting Started 22
1.2.2.1 Logging in to JIRA 22
1.2.2.2 Exploring the JIRA Workspace 23
1.2.2.3 Using Keyboard Shortcuts 23
1.2.3 Working with Issues 28
1.2.3.1 Attaching a File 29
1.2.3.2 Attaching a Screenshot 32
1.2.3.3 Cloning an Issue 35
1.2.3.4 Commenting on an Issue 36
1.2.3.5 Creating an Issue 39
1.2.3.6 Creating a Sub-Task 41
1.2.3.7 Editing Rich-Text Fields 44
1.2.3.8 Labelling an Issue 47
1.2.3.9 Linking Issues 48
1.2.3.10 Logging Work on an Issue 51
1.2.3.11 Modifying Multiple ('Bulk') Issues 57
1.2.3.12 Moving an Issue 63
1.2.3.13 Scheduling an Issue 65
1.2.3.14 Setting Security on an Issue 66
1.2.3.15 Viewing an Issue's Change History 67
1.2.3.16 Viewing an Issue's Crucible Reviews 68
1.2.3.17 Viewing an Issue's FishEye Changesets 69
1.2.3.18 Viewing the Bamboo Builds related to an Issue 70
1.2.3.19 Watching and Voting on an Issue 71
1.2.4 Searching for Issues 72
1.2.4.1 Receiving Search Results as an RSS Feed 78
1.2.4.2 Using Quick Search 79
1.2.4.3 Customising your Issue Navigator 82
1.2.4.4 Exporting Search Results to Microsoft Word 83
1.2.4.5 Exporting Search Results to Microsoft Excel 84
1.2.4.6 Receiving Search Results via Email 85
1.2.4.7 Displaying Search Results as a Chart 87

1.2.4.8 Using the Issue Navigator . . . 90
1.2.4.9 Saving Searches ('Issue Filters') . . . 92
1.2.4.10 Performing Text Searches . . . 97
1.2.4.11 Advanced Searching . . . 101
1.2.4.12 Displaying Search Results in XML . . . 155
1.2.5 Generating Reports . . . 159
1.2.5.1 Workload Pie Chart Report . . . 160
1.2.5.2 User Workload Report . . . 162
1.2.5.3 Version Workload Report . . . 163
1.2.5.4 Time Tracking Report . . . 165
1.2.5.5 Single Level Group By Report . . . 167
1.2.5.6 Created vs Resolved Issues Report . . . 168
1.2.5.7 Resolution Time Report . . . 171
1.2.5.8 Pie Chart Report . . . 174
1.2.5.9 Average Age Report . . . 177
1.2.5.10 Recently Created Issues Report . . . 179
1.2.5.11 Time Since Issues Report . . . 182
1.2.6 Browsing a Project . . . 185
1.2.6.1 Browsing a Project's Summary . . . 186
1.2.6.2 Browsing a Project's Issues . . . 187
1.2.6.3 Browsing a Project's Road Map . . . 188
1.2.6.4 Browsing a Project's Change Log . . . 189
1.2.6.5 Browsing a Project's Popular Issues . . . 190
1.2.6.6 Browsing a Project's Versions . . . 191
1.2.6.6.1 Browsing a Version's Summary . . . 192
1.2.6.6.2 Browsing a Version's Issues . . . 193
1.2.6.6.3 Browsing a Version's Popular Issues . . . 194
1.2.6.6.4 Browsing a Version's Bamboo Builds . . . 194
1.2.6.7 Browsing a Project's Components . . . 196
1.2.6.7.1 Browsing a Component's Summary . . . 197
1.2.6.7.2 Browsing a Component's Issues . . . 198
1.2.6.7.3 Browsing a Component's Road Map . . . 199
1.2.6.7.4 Browsing a Component's Change Log . . . 200
1.2.6.7.5 Browsing a Component's Popular Issues . . . 200
1.2.6.8 Browsing a Project's Labels . . . 201
1.2.6.9 Browsing a Project's Bamboo Builds . . . 202
1.2.6.10 Browsing a Project's FishEye Changesets . . . 204
1.2.6.11 Browsing a Project's Crucible Reviews . . . 205
1.2.6.12 Viewing a Project's Burndown Chart . . . 206
1.2.7 Customising the Dashboard . . . 207
1.2.7.1 Changing the Look and Behaviour of a Gadget . . . 211
1.2.7.2 Managing Multiple Dashboard Pages . . . 215
1.2.7.3 Adding the Activity Stream Gadget . . . 221
1.2.7.4 Adding the Administration Gadget . . . 223
1.2.7.5 Adding the Assigned To Me Gadget . . . 224
1.2.7.6 Adding the Average Age Gadget . . . 225
1.2.7.7 Adding the Bamboo Charts Gadget . . . 227
1.2.7.8 Adding the Bamboo Plan Summary Chart Gadget . . . 228
1.2.7.9 Adding the Bamboo Plans Gadget . . . 231
1.2.7.10 Adding the Bugzilla ID Search Gadget . . . 232
1.2.7.11 Adding the Calendar Gadget . . . 233
1.2.7.12 Adding the Clover Coverage Gadget . . . 235
1.2.7.13 Adding the Created vs Resolved Gadget . . . 235
1.2.7.14 Adding the Crucible Charts Gadget . . . 238
1.2.7.15 Adding the Favourite Filters Gadget . . . 240
1.2.7.16 Adding the Filter Results Gadget . . . 241
1.2.7.17 Adding the FishEye Charts Gadget . . . 242
1.2.7.18 Adding the FishEye Recent Changesets Gadget . . . 243
1.2.7.19 Adding the In Progress Gadget . . . 244
1.2.7.20 Adding the Introduction Gadget . . . 245
1.2.7.21 Adding the Issue Statistics Gadget . . . 246
1.2.7.22 Adding the JIRA News Gadget . . . 247
1.2.7.23 Adding the Pie Chart Gadget . . . 248
1.2.7.24 Adding the Projects Gadget . . . 250
1.2.7.25 Adding the Quick Links Gadget . . . 252
1.2.7.26 Adding the Recently Created Issues Gadget . . . 252
1.2.7.27 Adding the Resolution Time Gadget . . . 255
1.2.7.28 Adding the Road Map Gadget . . . 257
1.2.7.29 Adding the Text Gadget . . . 258
1.2.7.30 Adding the Time Since Issues Gadget . . . 259
1.2.7.31 Adding the Two-Dimensional Filter Statistics Gadget . . . 261
1.2.7.32 Adding the Voted Issues Gadget . . . 263
1.2.7.33 Adding the Watched Issues Gadget . . . 264
1.2.7.34 Adding the Heat Map Gadget . . . 266
1.2.7.35 Adding the Labels Gadget . . . 266
1.2.8 Managing your User Profile . . . 267
1.2.8.1 Adding a User Avatar . . . 269
1.2.8.2 Allowing OAuth Access . . . 271
1.2.8.3 Changing your Password . . . 274
1.2.8.4 Choosing a Language . . . 274

1.2.8.5 Using Hover Profile . . . 275
1.3 JIRA Administrator's Guide . . . 276
1.3.1 Getting Help . . . 278
1.3.2 Configuring the Layout and Design . . . 280
1.3.2.1 Customising the Look and Feel . . . 280
1.3.2.2 Choosing a Default Language . . . 282
1.3.2.3 Configuring the Default Issue Navigator . . . 283
1.3.2.4 Configuring the Default Dashboard . . . 284
1.3.2.4.1 Using Dashboard Gadgets . . . 284
1.3.2.4.2 Adding a Gadget to the Directory . . . 286
1.3.2.4.3 Subscribing to Another Application's Gadgets . . . 288
1.3.2.5 Configuring an Announcement Banner . . . 290
1.3.2.6 Enabling Logout Confirmation . . . 291
1.3.3 User and Group Management . . . 291
1.3.3.1 Configuring User Directories . . . 292
1.3.3.1.1 Configuring the Internal Directory . . . 293
1.3.3.1.2 Connecting to an LDAP Directory . . . 294
1.3.3.1.3 Connecting to an Internal Directory with LDAP Authentication . . . 307
1.3.3.1.4 Connecting to Crowd or Another JIRA Server for User Management . . . 308
1.3.3.1.5 Managing Multiple Directories . . . 311
1.3.3.1.6 Synchronising Data from External Directories . . . 313
1.3.3.1.7 Managing Nested Groups . . . 314
1.3.3.1.8 Diagrams of Possible Configurations for User Management . . . 316
1.3.3.1.9 User Management Limitations and Recommendations . . . 317
1.3.3.1.10 Allowing Other Applications to Connect to JIRA for User Management . . . 320
1.3.3.2 Enabling Public Signup and CAPTCHA . . . 321
1.3.3.3 Managing Users . . . 322
1.3.3.4 Managing Groups . . . 326
1.3.3.5 Managing Project Roles . . . 329
1.3.3.6 Migrating User Groups to Project Roles . . . 332
1.3.3.7 Viewing User Sessions . . . 338
1.3.3.7.1 User access logging . . . 339
1.3.3.8 Clearing 'Remember my login' Tokens . . . 341
1.3.3.8.1 Disabling Remember My Login on this Computer . . . 343
1.3.4 Project Management . . . 343
1.3.4.1 Defining a Project . . . 343
1.3.4.2 Managing Project Role Membership . . . 345
1.3.4.3 Defining a Component . . . 347
1.3.4.4 Managing Versions . . . 350
1.3.4.4.1 Creating Release Notes . . . 354
1.3.4.5 Configuring Project Keys . . . 355
1.3.5 Configuring Security . . . 356
1.3.5.1 Configuring Issue Level Security . . . 357
1.3.5.2 Preventing Security Attacks . . . 364
1.3.5.3 Managing Project Permissions . . . 366
1.3.5.4 Managing Global Permissions . . . 373
1.3.5.5 Configuring Secure Administrator Sessions . . . 375
1.3.6 Configuring Fields and Screens . . . 376
1.3.6.1 Configuring Built-in Fields . . . 378
1.3.6.1.1 Defining 'Issue Type' Field Values . . . 378
1.3.6.1.2 Defining 'Priority' Field Values . . . 383
1.3.6.1.3 Defining 'Resolution' Field Values . . . 385
1.3.6.1.4 Defining 'Status' Field Values . . . 385
1.3.6.1.5 Translating Resolutions, Priorities, Statuses and Issue Types . . . 386
1.3.6.2 Adding a Custom Field . . . 388
1.3.6.2.1 Configuring a Custom Field . . . 392
1.3.6.2.2 Creating Help for a Custom Field . . . 397
1.3.6.3 Specifying Field Behaviour . . . 398
1.3.6.3.1 Associating Field Behaviour with Issue Types . . . 403
1.3.6.3.2 Configuring Renderers . . . 407
1.3.6.4 Defining a Screen . . . 414
1.3.6.4.1 Associating a Screen with an Issue Operation . . . 421
1.3.6.4.2 Associating a Screen with an Issue Type . . . 425
1.3.7 Configuring Workflow . . . 428
1.3.7.1 Activating Workflow . . . 441
1.3.7.2 Adding a Custom Event . . . 443
1.3.8 Configuring Email Notifications . . . 445
1.3.8.1 Creating a Notification Scheme . . . 447
1.3.8.2 Customising Email Content . . . 450
1.3.8.3 Creating Issues and Comments from Email . . . 451
1.3.8.4 Configuring JIRA to Send SMTP Mail . . . 455
1.3.8.4.1 Using Gmail as a JIRA Mail Server . . . 459
1.3.8.5 Configuring JIRA to Receive POP or IMAP Mail . . . 461
1.3.9 Migrating from Other Issue Trackers . . . 462
1.3.9.1 Importing Data From FogBugz . . . 463
1.3.9.2 Importing Data From Mantis . . . 466
1.3.9.3 Importing Data from Bugzilla . . . 469
1.3.9.4 Importing Data From CSV . . . 472
1.3.9.4.1 Commonly Asked CSV Questions and Known Issues . . . 478
1.3.9.4.2 How to Import CSV Data with PVCS Command . . . 479

1.3.10 Moving or Archiving Individual Projects . . . 479
1.3.10.1 Archiving a Project . . . 479
1.3.10.2 Splitting a JIRA instance . . . 480
1.3.11 Integrating with a Source Control System . . . 481
1.3.11.1 Integrating JIRA with FishEye . . . 481
1.3.11.2 Integrating JIRA with CVS and ViewCVS . . . 482
1.3.11.3 Integrating JIRA with Subversion . . . 486
1.3.11.4 Integrating JIRA with Perforce . . . 486
1.3.11.5 Integrating JIRA with ClearCase . . . 486
1.3.12 Integrating with a Build Management System . . . 486
1.3.12.1 Integrating JIRA with Bamboo . . . 487
1.3.13 Configuring Global Settings . . . 487
1.3.13.1 Configuring JIRA Options . . . 487
1.3.13.2 Setting Properties and Options on Startup . . . 490
1.3.13.2.1 Recognized System Properties for JIRA . . . 495
1.3.13.3 Advanced JIRA configuration with jira-application.properties . . . 496
1.3.13.4 Configuring File Attachments . . . 497
1.3.13.5 Configuring Sub-tasks . . . 500
1.3.13.6 Configuring Issue Linking . . . 501
1.3.13.7 Enabling Trackback . . . 502
1.3.13.8 Configuring Time Tracking . . . 504
1.3.13.9 Configuring the Whitelist . . . 506
1.3.13.10 Configuring Application Links . . . 507
1.3.13.10.1 Adding an Application Link . . . 507
1.3.13.10.2 Configuring Authentication for an Application Link . . . 509
1.3.13.10.3 Editing an Application Link . . . 515
1.3.13.10.4 Making an Application Link the Primary Link . . . 516
1.3.13.10.5 Relocating an Application Link . . . 517
1.3.13.10.6 Upgrading an Application Link . . . 517
1.3.13.10.7 Deleting an Application Link . . . 520
1.3.13.10.8 Configuring Link Rendering . . . 521
1.3.13.10.9 Configuring Entity Links for an Application Link . . . 521
1.3.14 Server Administration . . . 524
1.3.14.1 Increasing JIRA Memory . . . 524
1.3.14.2 Using the Database Integrity Checker . . . 528
1.3.14.3 Precompiling JSP pages . . . 530
1.3.14.4 Database Indexing . . . 530
1.3.14.5 Logging and Profiling . . . 531
1.3.14.5.1 Logging email protocol details . . . 534
1.3.14.6 Restoring Data . . . 535
1.3.14.6.1 Restoring a Project from Backup . . . 537
1.3.14.7 Optimising Performance . . . 545
1.3.14.8 Backing Up Data . . . 545
1.3.14.8.1 Automating JIRA Backups . . . 547
1.3.14.8.2 Preventing users from accessing JIRA during backups . . . 549
1.3.14.9 Search Indexing . . . 549
1.3.14.9.1 Re-Indexing after Major Configuration Changes . . . 550
1.3.14.10 Using robots.txt to hide from Search Engines . . . 551
1.3.14.11 Updating your JIRA License Details . . . 551
1.3.14.12 Viewing your System Information . . . 553
1.3.14.13 Generating a Thread Dump . . . 557
1.3.14.14 Performance Testing Scripts . . . 560
1.3.14.15 Finding the JIRA Support Entitlement Number (SEN) . . . 566
1.3.15 Appendix A - Extending JIRA . . . 567
1.3.15.1 Managing JIRA's Plugins . . . 568
1.3.15.2 Listeners . . . 575
1.3.15.3 Services . . . 576
1.3.15.4 Jelly Tags . . . 584
1.3.15.5 JIRA Toolkit (Customer Support Extensions) . . . 606
1.3.15.6 Developer Guides . . . 607
1.3.15.7 Building JIRA from Source . . . 607
1.3.15.7.1 How to Make a JIRA Patch . . . 610
1.3.15.8 API Documentation . . . 611
1.4 JIRA Installation and Upgrade Guide . . . 611
1.4.1 JIRA Requirements . . . 612
1.4.1.1 Installing Java . . . 613
1.4.2 Supported Platforms . . . 615
1.4.2.1 End of Support Announcements for JIRA . . . 617
1.4.2.2 Caveats in using Firefox 3.6.0 with JIRA . . . 619
1.4.3 Installing JIRA Standalone . . . 620
1.4.3.1 Installing JIRA Standalone on Windows . . . 620
1.4.3.2 Installing JIRA Standalone on Mac OS . . . 622
1.4.3.3 Installing JIRA Standalone on Unix or Linux . . . 623
1.4.3.4 Configuring JIRA Standalone . . . 624
1.4.3.4.1 Running JIRA over SSL or HTTPS . . . 624
1.4.3.4.2 Installing Confluence and JIRA Together . . . 629
1.4.3.4.3 Changing JIRA Standalone's port . . . 629
1.4.3.4.4 Integrating JIRA with a Web Server . . . 630
1.4.3.4.5 Running JIRA Standalone as a Service . . . 642
1.4.3.4.6 Starting JIRA Standalone automatically on Linux . . . 647

1.4.3.4.7 Using the JIRA Configuration Tool . . . 649
1.4.3.4.8 Starting JIRA Standalone automatically on FreeBSD . . . 651
1.4.4 Installing JIRA WAR-EAR . . . 652
1.4.4.1 JIRA WAR-EAR Configuration Overview . . . 654
1.4.4.1.1 Configuring the Entity Engine for JIRA . . . 654
1.4.4.2 Switching Application Servers . . . 656
1.4.4.3 Installing JIRA on Tomcat 6.0 . . . 656
1.4.4.3.1 Tomcat 6.0 notes . . . 661
1.4.4.4 Installing JIRA on Tomcat 5.5 . . . 661
1.4.4.4.1 Tomcat 5.5 notes . . . 665
1.4.4.5 Deploying Multiple Atlassian Applications in a Single Tomcat Container . . . 665
1.4.5 Connecting JIRA to a Database . . . 666
1.4.5.1 Connecting JIRA to MySQL . . . 666
1.4.5.2 Connecting JIRA to PostgreSQL . . . 670
1.4.5.3 Connecting JIRA to SQL Server 2005 . . . 673
1.4.5.4 Connecting JIRA to SQL Server 2008 . . . 677
1.4.5.5 Connecting JIRA to Oracle . . . 681
1.4.5.6 Connecting JIRA to HSQLDB . . . 684
1.4.5.7 Switching Databases . . . 687
1.4.6 Running the Setup Wizard . . . 687
1.4.6.1 Next Steps - Adding Users . . . 690
1.4.6.2 Next Steps - Creating a Project . . . 694
1.4.6.3 Next Steps - Creating an Issue . . . 696
1.4.7 Upgrading JIRA . . . 697
1.4.7.1 Migrating JIRA to Another Server . . . 701
1.4.7.2 Disabling Auto-Export . . . 705
1.4.8 JIRA Releases . . . 706
1.4.8.1 Production Releases . . . 706
1.4.8.1.1 JIRA 4.3 Release Notes . . . 709
1.4.8.1.2 JIRA 4.2 Release Notes . . . 732
1.4.8.1.3 JIRA 4.1 Release Notes . . . 757
1.4.8.1.4 JIRA 4.0 Release Notes . . . 778
1.4.8.1.5 JIRA 3.13 Release Notes . . . 811
1.4.8.1.6 JIRA 3.12 Release Notes . . . 833
1.4.8.1.7 JIRA 3.11 Release Notes . . . 849
1.4.8.1.8 JIRA 3.10 Release Notes . . . 857
1.4.8.1.9 JIRA 3.9 Release Notes . . . 864
1.4.8.1.10 JIRA 3.8 Release Notes . . . 870
1.4.8.1.11 JIRA 3.7 Release Notes . . . 875
1.4.8.1.12 JIRA 3.6 Release Notes . . . 894
1.4.8.1.13 JIRA 3.5 Release Notes . . . 914
1.4.8.1.14 JIRA 3.4 and 3.4.1 Release Notes . . . 923
1.4.8.1.15 JIRA 3.3 Release Notes . . . 934
1.4.8.1.16 JIRA 3.2 Release Notes . . . 940
1.4.8.1.17 JIRA 3.1 Release Notes . . . 950
1.4.8.1.18 JIRA 3.0 Release Notes . . . 953
1.4.8.1.19 JIRA 2.6 Release Notes . . . 957
1.4.8.1.20 All JIRA Release Notes (version 3.x and later) . . . 960
1.4.8.1.21 All JIRA Upgrade Guides (version 3.x and later) . . . 961
1.4.8.1.22 Important Version-Specific Upgrade Guides . . . 982
1.4.8.2 JIRA Release Summary . . . 983
1.4.8.3 Beta Releases . . . 986
1.4.8.3.1 JIRA 4.3 RC1 Release Notes . . . 986
1.4.8.3.2 JIRA 4.3 Beta 1 Release Notes . . . 100
1.4.8.3.3 JIRA 4.2 RC1 Release Notes . . . 100
1.4.8.3.4 JIRA 4.2 Beta 3 Release Notes . . . 102
1.4.8.3.5 JIRA 4.2 Beta 2 Release Notes . . . 103
1.4.8.3.6 JIRA 4.2 Beta 1 Release Notes . . . 104
1.4.8.3.7 JIRA 4.0 RC1 Release Notes . . . 105
1.4.8.3.8 JIRA 4.0 Beta 5 Release Notes . . . 107
1.4.8.3.9 JIRA 4.0 Beta 4 Release Notes . . . 108
1.4.8.3.10 JIRA 4.0 Beta 3 Release Notes . . . 110
1.4.8.3.11 JIRA 4.0 Beta 2 Release Notes . . . 111
1.4.8.3.12 JIRA 4.0 Beta 1 Release Notes . . . 113
1.4.8.4 EAP Releases . . . 114
1.4.8.4.1 JIRA 4.3 EAP 5 Release Notes . . . 114
1.4.8.4.2 JIRA 4.3 EAP 3 Release Notes . . . 115
1.4.8.4.3 JIRA 4.3 EAP 2 Release Notes . . . 115
1.4.8.4.4 JIRA 4.3 EAP 1 Release Notes . . . 116
1.4.8.4.5 JIRA 4.2 EAP 4 Release Notes . . . 116
1.4.8.4.6 JIRA 4.2 EAP 3 Release Notes . . . 117
1.4.8.4.7 JIRA 4.2 EAP 2 Release Notes . . . 118
1.4.8.4.8 JIRA 4.2 EAP 1 Release Notes . . . 119
1.4.8.4.9 JIRA 3.11 EAP Release Notes . . . 121
1.4.8.5 Security Advisories . . . 121
1.4.8.5.1 JIRA Security Advisory 2011-02-21 . . . 121
1.4.8.5.2 JIRA Security Advisory 2010-12-06 . . . 121
1.4.8.5.3 JIRA Security Advisory 2010-06-18 . . . 121
1.4.8.5.4 JIRA Security Advisory 2010-04-16 . . . 121
1.4.8.5.5 JIRA Security Advisory 2009-04-02 . . . 122

1.4.8.5.6 JIRA Security Advisory 2008-12-09 . . . 122
1.4.8.5.7 JIRA Security Advisory 2008-10-29 . . . 123
1.4.8.5.8 JIRA Security Advisory 2008-08-26 . . . 123
1.4.8.5.9 JIRA Security Advisory 2008-02-21 . . . 123
1.4.8.5.10 JIRA Security Advisory 2007-12-24 . . . 123
1.4.9 Securing JIRA with Apache . . . 124
1.4.9.1 Using Apache to Limit Access to the JIRA Administration Interface . . . 124
1.4.9.2 Using Fail2Ban to limit login attempts . . . 125
1.4.10 Tomcat security best practices . . . 125
1.4.11 Important Directories and Files . . . 125
1.4.11.1 JIRA Home Directory . . . 125
1.4.11.2 JIRA Installation Directory . . . 125
1.4.11.3 Setting your JIRA Home Directory . . . 126
1.4.11.3.1 How do I unlock my JIRA home directory? . . . 126
1.4.12 Running JIRA in a Virtualised Environment . . . 126
1.4.13 Deployment Planning Activity . . . 126
1.5 JIRA Resources . . . 126
1.5.1 JIRA Tutorial Videos . . . 126
1.5.2 Support Policies . . . 126
1.5.2.1 Bug Fixing Policy . . . 127
1.5.2.2 How to Report a Security Issue . . . 127
1.5.2.3 New Features Policy . . . 127
1.5.2.4 Patch Policy . . . 127
1.5.2.5 Security Advisory Publishing Policy . . . 127
1.5.2.6 Security Patch Policy . . . 127
1.5.2.7 Severity Levels for Security Issues . . . 127
1.5.3 Local JIRA documentation . . . 127
1.5.4 JIRA FAQ . . . 127
1.6 JIRA Administrators FAQ . . . 127
1.6.1 Performance FAQ . . . 127
1.6.1.1 Is your JIRA Running Slowly . . . 127
1.6.2 Usage FAQ . . . 127
1.6.2.1 Modifying the JIRA Footer . . . 128
1.6.2.2 'Road Map', 'Change Log ', and 'Versions' Project Tabs Are Not Visible . . . 128
1.6.2.3 Why Do Linked Issues in JIRA Appear with a Strike-Through . . . 128
1.6.2.4 How to Enable the FishEye Plugin from the Plugin Administration Screen . . . 128
1.6.2.5 How to Add the Priority Field Into the Email Subject . . . 128
1.6.2.6 How to Change the Number of Rows Allowed in the Text Type Custom Field Renderer . . . 128
1.6.2.7 How to Make a Federated JIRA Instance . . . 128
1.6.2.8 How to Remove 'Unknown' Option from 'Component' and 'Fix Versions' . . . 128
1.6.2.9 Automatic Escalation of issues . . . 128
1.6.2.10 How to Activate Header Row for Subtask List in Issue Detail View . . . 128
1.6.2.11 How to Limit the Number of Characters Entered in a Summary Field . . . 128
1.6.2.12 JIRA's Timestamp Doesn't Match the System Time . . . 128
1.6.2.13 How to Attach a File During Issue Creation . . . 128
1.6.2.14 How to Remove Duplicate Entries for Names and Groups . . . 128
1.6.2.15 How to Export Users to CSV from JIRA . . . 128
1.6.2.16 How Come JIRA does Not Show Direct SQL Data Modifications . . . 128
1.6.2.17 How to get JIRA Pages to Render when URL Contains an Underscore . . . 128
1.6.2.18 Certain Action Words Show Incorrect Language Translations . . . 128
1.6.2.19 Adding custom content to the front page . . . 128
1.6.2.20 Allow editing of Closed Issues . . . 128
1.6.2.21 Allowing users to create issues anonymously . . . 128
1.6.2.22 Anonymising Data . . . 128
1.6.2.23 Appending Email Addresses to Comments Made by Anonymous Users when Using a Mail Handler . . . 128
1.6.2.24 Asking for an attachment on the Create Issue page . . . 128
1.6.2.25 Associating a new screen with issue operations . . . 128
1.6.2.26 Automatically Populate Timezone from a Created Issue . . . 129
1.6.2.27 Can I store customer details, like company, address and contact information, in JIRA? . . . 129
1.6.2.28 Change JIRA Browser Icon . . . 129
1.6.2.29 Changing Custom Field Types . . . 129
1.6.2.30 Changing Templates Used by Export to Excel from the Issue Navigator . . . 129
1.6.2.31 Changing the default attachment size limit . . . 129
1.6.2.32 Changing the Default Order for Comments from Ascending to Descending . . . 129
1.6.2.33 Changing the default session timeout . . . 129
1.6.2.34 Changing the Default Tab Panel from Comments to All . . . 129
1.6.2.35 Changing the Due Date Input Format . . . 129
1.6.2.36 Changing the Issue Key format . . . 129
1.6.2.37 Changing the Project Key . . . 129
1.6.2.38 Changing the Size and Content of the Components Select List . . . 129
1.6.2.39 Changing the Size of the Fix Versions and Affects Versions Select List . . . 129
1.6.2.40 Changing the Size of the Text Area Custom Field . . . 129
1.6.2.41 Changing the Temporary Directory . . . 129
1.6.2.42 Changing Usernames in JIRA . . . 129
1.6.2.43 Configuring project specific security . . . 129
1.6.2.43.1 Controlling project visibility . . . 129
1.6.2.43.2 Using Project Level Security with Project Roles . . . 129
1.6.2.43.3 Using Project Level Security with User Groups . . . 129
1.6.2.44 Connecting to SSL services . . . 130
1.6.2.45 Creating a Custom Workflow . . . 130

1.6.2.46 Creating an Unassigned Issue . . . 131
1.6.2.47 Creating Issues via direct HTML links . . . 131
1.6.2.48 Current Reporter Browse Project Permission . . . 131
1.6.2.49 Custom Field Column not Visible in Issue Navigator . . . 131
1.6.2.50 CVS ssh Jira Integration . . . 131
1.6.2.51 Disabling Form Token Checking . . . 131
1.6.2.52 Displaying a Field Based on Another Field Selection . . . 131
1.6.2.53 Editing a custom field option . . . 131
1.6.2.54 Escalating issues (or sending email notifications) when the set turnaround time is exceeded . . . 131
1.6.2.55 Field Layout Schemes in JIRA 3.x . . . 131
1.6.2.56 Fields Allowing Custom HTML or JavaScript . . . 131
1.6.2.57 Finding the Id for Issue Types . . . 131
1.6.2.58 Group Name Guidelines for JIRA . . . 131
1.6.2.59 How can I control the editing of issue fields via workflow? . . . 131
1.6.2.59.1 Using a Workflow to control edit of an issue by changing Workflow XML . . . 131
1.6.2.59.2 Using Templates to control edit of an issue . . . 132
1.6.2.60 How do I assign issues to multiple users . . . 132
1.6.2.61 How do I change the constraints on historical time parameters in gadgets? . . . 132
1.6.2.62 How do I delete a user account? . . . 132
1.6.2.63 How do I disable Firebug for JIRA? . . . 132
1.6.2.64 How Do I Use an SSL Certificate Generated Using openssl? . . . 132
1.6.2.65 How the CreateOrCommentHandler works? . . . 132
1.6.2.66 How to change the location of stdout and stderr logs . . . 132
1.6.2.67 How to clear the resolution field when the issue is reopened . . . 132
1.6.2.68 How to configure sub-task to have a specific screen? . . . 132
1.6.2.69 How to convert types using Jelly . . . 132
1.6.2.70 How to create a download link to a file . . . 132
1.6.2.71 How to disable the Resolve issue screen while resolving issues . . . 132
1.6.2.72 How to display a different format for the Number customfield . . . 132
1.6.2.73 How to display custom field of the sub-task in the parent issue screen? . . . 132
1.6.2.74 How to Edit the 'Contact Administrator' Page in JIRA 4.1.1 and Above . . . 132
1.6.2.75 How to ensure the Road Map tab is visible . . . 132
1.6.2.76 How to Get Unicode 'non-ASCII' Characters in HTTPS URL to Appear Correctly . . . 132
1.6.2.77 How to have long component version names display properly in the Issue Navigator . . . 132
1.6.2.78 How to Remove 'NONE' from a Select List Custom Field . . . 132
1.6.2.79 How to Rename the 'Priority' Field in the Issue Navigator . . . 133
1.6.2.80 How to re-order the list of issue operation in an issue . . . 133
1.6.2.81 How to resize Free Text Field customfield . . . 133
1.6.2.82 How to resize the 'Components' and 'Affects Versions' fields in the Issue Navigator . . . 133
1.6.2.83 How to Restrict the Subversion Commits Tab to Selected Projects or Users . . . 133
1.6.2.84 How to search by number range in the Issue Navigator . . . 133
1.6.2.85 How to show a transition only when the Assignee is different from the Current User . . . 133
1.6.2.86 Importing data . . . 133
1.6.2.87 Importing user from LDAP . . . 133
1.6.2.87.1 Neat JIRA LDAP tricks . . . 133
1.6.2.88 JIRA as a Support System . . . 133
1.6.2.88.1 Jelly Escalation . . . 133
1.6.2.88.2 Simple Escalation . . . 133
1.6.2.89 Letting customers only create issues . . . 133
1.6.2.90 Limiting the number of issues returned from a search view such as an RSS feed . . . 134
1.6.2.91 Linking to local file under Firefox . . . 134
1.6.2.92 Login problems . . . 134
1.6.2.93 Mail error - Unable to relay . . . 134
1.6.2.94 Making JIRA login case insensitive for JIRA 3.13.x . . . 134
1.6.2.95 Outward Link Description and Inward Link Description . . . 134
1.6.2.96 Parsing utf-7 emails . . . 134
1.6.2.97 Project-specific email templates . . . 134
1.6.2.98 QuickSearch guesses the issue key prefix (sometimes) . . . 134
1.6.2.99 Receiving a Daily Summary of Updated Issues . . . 134
1.6.2.100 Recieving Notification for Select Issues or Updates . . . 134
1.6.2.101 Removing Commas for Values Held in Number Field Custom Field Type . . . 134
1.6.2.102 Removing invalid characters from XML backups . . . 134
1.6.2.103 Removing NONE from the Issue Security Drop-Down List . . . 134
1.6.2.104 Re-order workflow transactions . . . 134
1.6.2.105 Resolved issues appearing in Open issues filters . . . 134
1.6.2.106 Restricting the Visibility of Worklog on an Issue . . . 134
1.6.2.107 Retrieving the JIRA Administrator . . . 134
1.6.2.108 Scheme Entity Relations Map . . . 134
1.6.2.109 Sending JIRA Data to Support . . . 135
1.6.2.110 Setting Additional Fields for Issues Created from Email . . . 135
1.6.2.111 Setting a Default Value in the Description Field . . . 135
1.6.2.112 Setting Priority field value based on customfield value . . . 135
1.6.2.113 Showing Extended Timestamp in the Created Column of the Issue Navigator . . . 135
1.6.2.114 Single Sign-on . . . 135
1.6.2.115 Tracking the Time Taken for Each Workflow Transition . . . 135
1.6.2.116 Translating JIRA . . . 135
1.6.2.117 Troubleshooting Issue Creation Via Email . . . 135
1.6.2.118 Using JIRA to Manage reusable modules . . . 135
1.6.2.119 Using validators to make custom fields required on transition screens . . . 135
1.6.2.120 We already have users & groups defined elsewhere - can JIRA make use of these? . . . 135

1.6.2.121 Where are the application server logs? . . . 135
1.6.2.122 Why doesn't JIRA have a Severity field like Bugzilla? . . . 136
1.6.2.123 Workflow Properties . . . 136
1.6.2.124 Workflows Guidebook . . . 136
1.6.2.125 XML format for import & export files . . . 136
1.6.3 Installation Notes . . . 136
1.6.3.1 Configure JIRA as service on Mac OS X . . . 136
1.6.3.2 Configuring IIS with Tomcat . . . 136
1.6.3.3 Database Notes . . . 136
1.6.3.3.1 Connecting JIRA to a different database than the one provided as default . . . 136
1.6.3.3.2 Incorrect database type specified . . . 136
1.6.3.3.3 Restarting from Setup Wizard in JIRA Standalone . . . 136
1.6.3.3.4 Surviving Connection Closures . . . 136
1.6.3.3.5 Database limitations on number of projects . . . 136
1.6.3.3.6 JIRA and HSQL . . . 136
1.6.3.3.7 JIRA and MS SQL Server 2005 . . . 137
1.6.3.3.8 JIRA and MS SQL Server 2008 . . . 137
1.6.3.3.9 JIRA and MySQL . . . 137
1.6.3.3.10 JIRA and Oracle . . . 138
1.6.3.3.11 JIRA and PostgreSQL . . . 138
1.6.3.4 How to Set Up SMTP Relay in Exchange 2007 . . . 138
1.6.3.5 Installation Troubleshooting Guide . . . 139
1.6.3.6 Installing a LDAP server on Debian Linux for use with JIRA . . . 139
1.6.3.7 Installing Java on Ubuntu or Debian . . . 139
1.6.3.8 Is Clustering or Load Balancing JIRA Possible . . . 139
1.6.3.9 java.lang.NoClassDefFoundError . . . 139
1.6.3.10 JVM and Appserver configuration info . . . 139
1.6.3.11 LicenseFactory error after upgrading JIRA . . . 139
1.6.3.12 Logging request headers . . . 140
1.6.3.13 Running multiple instances of JIRA on one machine . . . 140
1.6.3.14 Solaris ClassNotFoundException . . . 140
1.6.3.15 Windows cannot find -Xms128m . . . 140
1.7 JIRA Development Hub . . . 140
1.7.1 JIRA Plugin Guide . . . 140
1.7.1.1 Component Plugin Module . . . 140
1.7.1.2 Component Import Plugin Module . . . 140
1.7.1.3 Component Tab Panel Plugin Module . . . 140
1.7.1.4 Configuring Plugins with Object Configurable Parameters . . . 140
1.7.1.5 Custom Field Plugin Module . . . 141
1.7.1.5.1 Custom field Velocity context unwrapped . . . 141
1.7.1.5.2 How to add searching to a Custom Field? . . . 141
1.7.1.6 Downloadable Plugin Resources . . . 141
1.7.1.7 Gadget Plugin Module . . . 141
1.7.1.8 Issue Operations Plugin Module . . . 141
1.7.1.9 Issue Tab Panel Plugin Module . . . 141
1.7.1.10 JQL Function Plugin Module . . . 141
1.7.1.11 Keyboard Shortcut Plugin Module . . . 142
1.7.1.12 Module Type Plugin Module . . . 142
1.7.1.13 Portlet Plugin Module . . . 142
1.7.1.13.1 Quick start guide for creating a portlet plugin . . . 142
1.7.1.14 Project Tab Panel Plugin Module . . . 143
1.7.1.15 Report Plugin Module . . . 143
1.7.1.16 RPC Endpoint Plugin Module . . . 143
1.7.1.17 Search Request View Plugin Module . . . 143
1.7.1.18 Servlet Context Listener Plugin Module . . . 143
1.7.1.19 Servlet Context Parameter Plugin Module . . . 143
1.7.1.20 Servlet Filter Plugin Module . . . 144
1.7.1.21 Servlet Plugin Module . . . 144
1.7.1.22 User Format Plugin Module . . . 144
1.7.1.23 Version Tab Panel Plugin Module . . . 144
1.7.1.24 Web Item Plugin Module . . . 144
1.7.1.25 Web Resource Plugin Module . . . 145
1.7.1.26 Web Section Plugin Module . . . 145
1.7.1.27 Web Fragments . . . 145
1.7.1.27.1 How to create a custom preset filter . . . 147
1.7.1.28 Webwork plugin module . . . 147
1.7.1.29 Workflow Plugin Modules . . . 147
1.7.1.30 Form Token Handling . . . 147
1.7.1.31 Differences between Plugins1 and Plugins2 . . . 147
1.7.1.32 REST Plugin Module Type . . . 148
1.7.2 Understanding how JIRA works . . . 148
1.7.2.1 Customising JIRA code . . . 148
1.7.2.2 Database Schema . . . 148
1.7.2.2.1 Change History . . . 149
1.7.2.2.2 Configuration properties . . . 149
1.7.2.2.3 Custom fields . . . 150
1.7.2.2.4 Issue fields . . . 150
1.7.2.2.5 Issue status and workflow . . . 150
1.7.2.2.6 Logging JIRA SQL Queries . . . 151
1.7.2.2.7 User and Group Tables . . . 151

1.7.2.3 JIRA Architectural Overview . . . 151
1.7.2.3.1 JIRA Webwork Actions . . . 151
1.7.2.4 PicoContainer and JIRA . . . 151
1.7.2.4.1 Non-managed classes . . . 151
1.7.2.5 Sample Code . . . 151
1.7.2.5.1 Creating and Editing an Issue . . . 151
1.7.2.5.2 How to search in a plugin . . . 152
1.7.2.5.3 Performing Issue Operations . . . 152
1.7.2.5.4 Retrieving issue's links . . . 152
1.7.2.5.5 Working with Custom Fields . . . 152
1.7.3 Developer Tutorials . . . 152
1.7.3.1 Jelly Examples . . . 152
1.7.3.2 JIRA RPC Services . . . 152
1.7.3.2.1 Creating a SOAP Client . . . 152
1.7.3.2.2 Creating a XML-RPC Client . . . 153
1.7.3.2.3 Enabling the RPC plugin . . . 153
1.7.3.2.4 JIRA XML-RPC Overview . . . 154
1.7.3.2.5 Frequently Asked RPC Questions and Known Issues . . . 154
1.7.3.3 Adding your own email handling classes . . . 154
1.7.3.4 Modifying JIRA Templates and JSPs . . . 154
1.7.3.4.1 Adding Custom Fields to Email . . . 154
1.7.3.4.2 Adding Custom Field to Issue Summary . . . 155
1.7.3.4.3 Adding JavaScript to all pages for Google Analytics . . . 155
1.7.3.4.4 Contents of the Velocity Context . . . 155
1.7.3.4.5 Creating a Custom Release Notes Template Containing Release Comments . . . 155
1.7.3.4.6 Customising interface based on user's role . . . 155
1.7.3.4.7 Customising JIRA Excel Output . . . 155
1.7.3.4.8 Customizing text . . . 156
1.7.3.4.9 Mapping custom events to new email templates . . . 156
1.7.3.4.10 Velocity Context for Email Templates . . . 156
1.7.3.5 JIRA Custom Installer Guide . . . 156
1.7.3.6 JIRA Plugin Tutorials . . . 156
1.7.3.6.1 Available Permissions . . . 156
1.7.3.6.2 How to create a new Custom Field Type . . . 156
1.7.3.6.3 How to create Custom Workflow Elements for JIRA 3 . . . 157
1.7.3.7 How to create a JIRA Report . . . 158
1.7.3.8 JIRA REST API (Alpha) Tutorial . . . 158
1.7.4 JIRA Developer FAQ . . . 159
1.7.4.1 How to make a custom field "importable" for project imports . . .
1.7.4.2 Can I have a different Excel template for each report? . . . 159
1.7.4.3 Developing against JIRA with Secure Administrator Sessions . . . 159
1.7.4.4 How do I create a report with custom issue set using IssueNavigator . . . 159
1.7.4.5 How do I determine which Issues a user is allowed to see? . . . 159
1.7.4.6 How do I develop for Application Links . . . 159
1.7.4.7 How do I extract CVS commits for an issue . . . 159
1.7.4.8 How do I find all Versions in a Project? . . . 160
1.7.4.9 How do I find issues with field X? . . . 160
1.7.4.10 How do I get access to manager X? . . . 160
1.7.4.11 How do I get access to the current request? . . . 160
1.7.4.12 How do I get a handle to object X (specifically IssueNavigator)? . . . 160
1.7.4.13 How do I get a handle to the 'components' of a JIRA project? . . . 160
1.7.4.14 How do I get a handle to the model (issues) then iterate? . . . 160
1.7.4.15 How do I get more help with SOAP? . . . 160
1.7.4.16 How do I include browser-specific CSS . . . 160
1.7.4.17 How do I know what else lurks in the Velocity context? . . . 160
1.7.4.18 How do I remove an issue operation? . . . 160
1.7.4.19 How do I write a servlet for JIRA? . . . 160
1.7.4.20 How to set a custom field value on an issue? . . . 160
1.7.4.21 How to Set Default Comment Security Level . . . 160
1.7.4.22 I have a GenericValue issue. How do I convert this to an Issue object? . . . 160
1.7.4.23 Is it possible to have a report plugin only appear for specific projects? . . . 160
1.7.4.24 Why am I getting 'Exception looking up public key' exception while building a plugin? . . . 160
1.7.5 JIRA Developer Forums . . . 160
1.8 Contributing to the JIRA Documentation . . . 160
1.8.1 Tips of the Trade . . . 160
1.8.2 Tips via Twitter . . . 161
1.8.3 JIRA Documentation in Other Languages . . . 161
1.9 GreenHopper for JIRA Guide . . . 161

JIRA Documentation

JIRA 4.3.x

User's Guide

The JIRA User's Guide is for project managers, developers, testers – anyone who uses JIRA. New to JIRA? Start by exploring the JIRA workspace and learning about issues, projects and workflow. Try creating some issues, then search, browse, export or report on them.

Administrator's Guide

The JIRA Administrator's Guide is for people with JIRA administration rights. It will help you set up users and groups, projects, security and email. You may want to customise the look and feel of JIRA, and add your own fields, screens and workflows. Admin tasks such as backup are also covered. You may also find the Knowledge Base, FAQ and JIRA Forum useful.

Installation Guide

The JIRA Installation Guide is for people who are installing JIRA for the first time. Check the requirements and supported platforms, then download and install JIRA. Where to next? The JIRA 101 will help you get started, or you may like to import the JIRA Sample Files. If you are using other Atlassian products, take a look at the Integration Guide.

Upgrade Guide

The JIRA Upgrade Guide is for people who are upgrading their instance of JIRA. Start by reading the latest Release Notes and version-specific Upgrade Guide for the version to which you are upgrading, then download JIRA and follow the main Upgrade Guide.

Developer Resources

These resources are for software developers who want to create their own plugins for JIRA. Take a look at the Development Hub and the API Documentation. You may also find the JIRA Developers Forum useful (click here to subscribe).

JIRA 101

JIRA 101

Thank you for choosing JIRA to track your projects and issues. To help you get up and running quickly, we've compiled some easy instructions for configuring and using JIRA 4.2.

Getting Started

1. Installing JIRA

First things first. If you haven't already got JIRA up and running, carry out the following steps:

- For Windows: (click to expand)

You may want to watch the video showing how to do this.

1. Download the JIRA Standalone Windows Installer (.EXE) file from the Atlassian Download Center.
2. Run the .EXE file, choose an installation directory, a home directory and a port ('8080' will do). We recommend that you choose to 'Run JIRA as a service'.
3. JIRA will start automatically when the Installer finishes, if you selected the option to launch JIRA at the end of the Installer.
4. To access JIRA, go to your web browser and type this address: http://localhost:8080. Windows 'Start' menu shortcuts will also be added which you can also use to start and stop JIRA.
5. Follow the Setup Wizard. This will guide you through the process of setting up your JIRA server, creating an Admin user and (optionally) setting up email.

For more help on the technical procedures in this section, see the JIRA Installation Guide.

If you need assistance, please create a support ticket.

Before using JIRA as a production system, you need to switch from the default HSQL database, which is provided for evaluation purposes only. Please see the documentation for details.

For Mac: (click to expand)

You may want to watch the video showing how to do this.

1. Download the JIRA Standalone TAR (.GZ) file from the Atlassian Download Center, and unzip it.
2. Edit the jira-application.properties file in the JIRA Installation Directory, add a 'jira.home' property and set it to your desired location for the JIRA home directory. Please use forward-slashes ("/"), not back-slashes ("\").
3. Run `bin/startup.sh` to start JIRA.
4. To access JIRA, go to your web browser and type this address: http://localhost:8080.
5. Follow the Setup Wizard. This will guide you through the process of setting up your JIRA server, creating an Admin user and (optionally) setting up email.

For more help on the technical procedures in this section, see the JIRA Installation Guide.

If you need assistance, please create a support ticket.

Before using JIRA as a production system, you need to switch from the default HSQL database, which is provided for evaluation purposes only. Please see the documentation for details.

For Linux: (click to expand)

1. Download the JIRA Standalone TAR (.GZ) file from the Atlassian Download Center, and unzip it.
2. Install Java and set JAVA_HOME.
3. Edit the jira-application.properties file in the JIRA Installation Directory, add a 'jira.home' property and set it to your desired location for the JIRA home directory. Please use forward-slashes ("/"), not back-slashes ("\").
4. Run `bin/startup.sh` to start JIRA.
5. To access JIRA, go to your web browser and type this address: http://localhost:8080.
6. Follow the Setup Wizard. This will guide you through the process of setting up your JIRA server, creating an Admin user and (optionally) setting up email.

For more help on the technical procedures in this section, see the JIRA Installation Guide.

If you need assistance, please create a support ticket.

Before using JIRA as a production system, you need to switch from the default HSQL database, which is provided for evaluation purposes only. Please see the documentation for details.

2. Adding Users

For each of your users, you will need to do the following: (click to expand)

1. Click '**Administration**' in the top navigation bar.
2. Click '**User Browser**' in the left navigation column, then click '**Add User**'.
3. Enter the **Username**, **Password**, **Full Name** and **Email Address**; and (optionally) tick the box to send the user an email containing their account details. Then click the **Create** button. For more details, please see the documentation.
4. The User Browser will be displayed. Locate the new user and click the '**Groups**' link in the '**Operations**' column.
5. If the user is going to need to work on issues, select the '**jira-developers**' group and click the '**Join**' button. (If the user is only going to log issues, and not work on them, then they don't need to belong to the '**jira-developers**' group.) For more about groups, please see the documentation.
    - Note: Adding your users to the '**jira-developers**' group will automatically add them to the Default Members for the '**Developers**' project role. For more about project roles, please see the documentation.

You may want to suggest to your users that they take a look at 'Mastering the Basics' (below). You may also want to point them to the documentation on:

- Changing your Password
- Exploring the JIRA Workspace

Your users will need to access JIRA at **http://<JIRA machine name>:8080** (not http://localhost:8080).

3. Creating a Project

Before you can create issues, you need to create a project to contain them. Here's how: (click to expand)

1. Click '**Administration**' in the top navigation bar.
2. Click '**Projects**' in the left navigation column, then click '**Add Project**'.
3. In the '**Name**' field, type a descriptive name for your project (typically two or three words, e.g. '**Purchase Orders**').
4. In the '**Key**' field, type a meaningful prefix for issues in your project (typically three or four characters, e.g.'**ORD**'). Note that this cannot be changed later.
5. In the '**Project Lead**' field, select the user to whom issues should be assigned by default.
6. If you chose to set up email when you installed JIRA (see above), change the '**Notification Scheme**' field from '**None**' to '**Default Notification Scheme**'. This will allow JIRA to automatically send emails to appropriate people when particular events occur (e.g. 'Issue Created', 'Issue Resolved'). For more about email, please see the documentation.
7. Leave the rest of the fields with their default values for now. Click the '**Add**' button.

For more about creating a project, please see the documentation or watch the video.

4. Optional Extras

Installing the Universal Plugin Manager: (click to expand)

To make it easy to add and manage JIRA plugins, you need to first do the following:

1. Download the Universal Plugin Manager from the Atlassian Plugin Exchange.
2. Shut down JIRA.
3. Copy the UPM plugin jar (e.g. 'atlassian-universal-plugin-manager-plugin-x.x.x.jar') into your JIRA home directory under `plugins/installed-plugins/`.
4. Start up JIRA.
5. Go to 'Administration > Plugins'. The Universal Plugin Manager will be listed and enabled.

Once you have installed the UPM, you can use it manage your JIRA plugins. For details, please see the documentation on Using the Universal Plugin Manager.

Mastering the Basics

5. Creating an Issue

To enter a new issue into JIRA: (click to expand)

1. Click the '**Create Issue**' link in the top navigation-bar.
2. Select the relevant Project and Issue Type, then click the '**Next**' button.
3. Type a short description of the issue in the '**Summary**' field, then click the '**Create**' button.

For more details, please see the documentation.

6. Logging Work on an Issue

To record the time that you have spent working on an issue, and action you have taken: (click to expand)

1. Go to the issue, and select '**Log work**' from the '**Operations**' menu in the left column.
2. In the '**Time Spent**' field, enter the amount of time to be logged. Use 'w', 'd', 'h' and 'm' to specify weeks, days, hours or minutes (e.g. to enter two hours of work, type '2h').
3. In the '**Work Description**' field, type a description or comment about the work you have done
4. Click the '**Log**' button.

For more details about the other options on this screen, please see the documentation.

7. Resolving an Issue

Resolving an issue sets its Status to 'Resolved', indicating that work is complete. To resolve an issue: (click to expand)

1. Go to the issue, and select '**Resolve Issue**' from the '**Available Workflow Actions**' menu in the left column.
2. In the '**Resolution**' field, select the 'Resolution' that best describes the outcome (e.g. 'Fixed').
3. (Optional) In the '**Comment**' field, type a description or comment about the issue's resolution.
4. Click the '**Resolve**' button.

For more information about how an issue moves from one Status to another, please see the documentation.

8. Searching for Issues

To use Quick Search: (click to expand)

- Use the box in the top right corner of every page to quickly search JIRA. You can type an issue key (e.g. `TEST-1234`) to jump directly to an issue, or use syntax like `my open issues` to immediately return all issues which are assigned to you and haven't yet been resolved.

To use Regular Search: (click to expand)

1. Click '**Issues**' on the top navigation bar to display JIRA's searching and filtering panel.
2. Select the Project, Issue Type, or any other issue attributes of interest. You can also perform comprehensive text searches.

To use Advanced Search: (click to expand)

1. Click '**Issues**' on the top navigation bar, then click '**advanced**' to display the JQL (JIRA Query Language) panel.
2. Type your query (e.g. 'project=TEST') and click the '**Search**' button.

See the documentation for more information about saving your searches ('issue filters') and receiving search results via email.

9. Charting, Reporting and Exporting

To generate a chart: (click to expand)

1. View your search results (see *'Searching'* above) in the Issue Navigator.
2. Click the '**Views**' menu and select the '**Charts**' option.
3. Choose your preferred type of chart, and enter any required configuration details. For more details, please see the documentation.

To generate a report: (click to expand)

1. Click '**Projects**' in the top navigation bar.
2. Select the project you are interested in.
3. Click '**Reports**' at the right of the screen and select the report of interest.
4. Enter any required configuration details, then click '**Next**' to display your report (e.g. Workload Pie Chart Report).

To export data to MS-Word, MS-Excel, XML or RSS: (click to expand)

1. View your search results (see *'Searching'* above) in the Issue Navigator.
2. Click the '**Views**' menu and select '**Word**', '**Excel**', or your preferred format. For more details, please see the documentation.

Customising JIRA

(Note that you need to be an Administrator to do the tasks in this section.)

Before you begin: (click to expand)

You may want to create a sample project named '**Purchase Orders**', in which to perform the tasks described in this section. For instructions, please see *'Creating a Project'* (above).

10. Adding a new Issue Type

Why would I do this? (click to expand)

The Issue Type is one of the first things a user must choose when they create an issue.
Depending on how your organisation is using JIRA, you might want to add a new Issue Type.
For example, if you are using JIRA to track purchase orders, the default Issue Types ('Bug', 'Improvement', 'New Feature', 'Task') might not be relevant. So you might want to add a new Issue Type called '**Order**'.

How do I do this? (click to expand)

To add a new Issue Type called '**Order**', and associate it with a project called '**Purchase Orders**':

1. Click '**Administration**' in the top navigation bar.
2. Click '**Issue Types**' in the left navigation column (under '**Issue Settings**').
3. In the '**Add New Issue Type**' form, in the '**Name**' field, type '**Order**. In the '**Description**' field, type '**A purchase order**'. Then click the '**Add**' button'. (For more about adding Issue Types, and icons, please see the documentation.)
4. Click the '**Issue Types Scheme**' tab at the top of the '**Manage Issue Types**' screen.
5. In the '**Add New Issue Type Scheme**' form, in the '**Name**' field, type '**Purchase Order Issue Type Scheme**'. Then click the '**Add**' button'. (For more about Issue Type Schemes, please see the documentation.)
6. In the '**Available Issue Types**' list, click the Issue Type called '**Order**' and drag it into the '**Issue Types for Current Scheme**' list. Then click the '**Save**' button.
7. Click '**Projects**' in the left navigation column. Then in the '**Name**' column, click '**Purchase Orders**'. The project details will be displayed.
8. Click the '**Select**' link next to the '**Issue Type Scheme**' field, select '**Purchase Order Issue Type Scheme**' and click the '**Associate**' button.

To test what you have done, create an issue in the '**Purchase Orders**' project. The only available Issue Type should be '**Order**'.

11. Adding a new Screen

Why would I do this? (click to expand)

Depending on how your organisation is using JIRA, you might want to add a purpose-built screen that will be displayed for particular types of issues, or for particular projects or workflows.
For example, if you are using JIRA to track purchase orders, some of the normal issue fields (e.g. 'Affects Version', 'Fix Version', 'Environment') might not be relevant. So you might want to create a simplified screen that omits these fields.

How do I do this? (click to expand)

To add a new Screen called '**Purchase Order Screen**', and associate it with a project called '**Purchase Orders**':

1. Click '**Administration**' in the top navigation bar.
2. Click '**Screens**' in the left navigation column (under '**Issue Fields**').
3. Click the '**Copy**' link next to '**Default Screen**'.
4. In the '**Name**' field, type '**Purchase Order Screen**'. Then click the '**Copy**' button'. (For more about Screens, please see the documentation.)
5. Click the '**Configure**' link next to '**Purchase Order Screen**'.
6. Tick the '**Remove**' box for the following fields: '**Affects Version**', '**Fix Version**', '**Environment**'. Then click the '**Remove**' button.
7. Click '**Screen Schemes**' in the left navigation column (under '**Issue Fields**').
8. In the '**Name**' field, type '**Purchase Order Screen Scheme**'. In the '**Default Screen**' field, select '**Purchase Order Screen**'. Then click the '**Add**' button'. (For more about Screen Schemes, please see the documentation.)
9. Click '**Issue Type Screen Schemes**' in the left navigation column (under '**Issue Fields**').
10. In the '**Name**' field, type '**Purchase Order Issue Type Screen Scheme**'. In the '**Screen Scheme**' field, select '**Purchase Order Screen Scheme**'. Then click the '**Add**' button'. (For more about Issue Type Screen Schemes, please see the documentation.)
11. Click '**Projects**' in the left navigation column. Then in the '**Name**' column, click '**Purchase Orders**'. The project details will be displayed.
12. Click the '**Select**' link next to the '**Issue Type Screen Scheme**' field, select '**Purchase Order Issue Type Screen Scheme**' and click the '**Associate**' button.

To test what you have done, view an issue in the '**Purchase Orders**' project. You shouldn't see the '**Affects Version**', '**Fix Version**' or '**Environment**' fields.

12. Adding a new Custom Field

Why would I do this? (click to expand)

Depending on how your organisation is using JIRA, you might need to add a 'custom' field that will be displayed for particular types of issues, or for particular projects.
For example, if you are using JIRA to track purchase orders, you might create a custom field called '**Supplier**'.

How do I do this? (click to expand)

To create a new custom field called '**Supplier**' and put it on the '**Purchase Order Screen**':

1. Click '**Administration**' in the top navigation bar.
2. Click '**Custom Fields**' in the left navigation column (under '**Issue Fields**'), then click '**Add Custom Field**'.
3. On the '**Create Custom Field - Step 1**' screen, in the '**Field Type**' field, choose '**Select List'**. Then click the '**Next**' button.
4. On the '**Create Custom Field - Step 2**' screen:
    a. in the '**Name**' field, type '**Supplier'**.
    b. in the '**Description**' field, type '**Choose the supplier for this Purchase Order**'.
    c. under '**Choose applicable issue types**' select '**Order**'. Then click the '**Finish**' button.
5. On the '**Associate field Order to screens**' screen, tick the check-box for '**Purchase Order Screen**'. Then click the '**Update**' button.
6. On the '**View Custom Fields**' screen, click the '**Configure**' link next to '**Supplier**'. Then click '**Edit Options**'.
7. Add three options: '**ABC Pty Ltd**', '**ACME Pty Ltd**', '**XYZ Pty Ltd**'. Choose '**ACME Pty Ltd**' as the default. Then click the '**Done**' button.

To test what you have done, create an issue in the '**Purchase Orders**' project. You should see a field called '**Supplier**' that has a drop-down box containing your three options.

Note: you may also want to watch the video on adding a custom field.

13. Adding a new Issue Status and Workflow

Why would I do this? (click to expand)

Depending on how your organisation is using JIRA, you might need to add a new 'Status' , i.e. a new step in the issue 'workflow'. For example, if you are using JIRA to track purchase orders, you might add a new Status called '**Purchase Approved**' .

How do I do this? (click to expand)

To add a new Status called '**Purchase Approved**', and create a new workflow that has an extra step between '**Open**' and '**In Progress**':

1. Click '**Administration**' in the top navigation bar.
2. Click '**Statuses**' in the left navigation column (under '**Issue Settings**').
3. In the '**Name**' field, type '**Purchase Approved**'. Then click the '**Add**' button'. (For more about adding Statuses, and icons, please see the documentation.)
4. Click '**Workflows**' in the left navigation column.
5. Click the '**Copy**' link next to '**jira (Read-only System Workflow)**'.
6. In the '**Workflow Name**' field, type '**Purchase Order Workflow**'. Then click the '**Copy**' button'. (For more about Workflow, please see the documentation.)
7. Click the '**Steps**' link next to '**Purchase Order Workflow**'.
8. In the '**Add New Step**' form:
    a. in the '**Name**' field, type '**Purchase Approved**'.
    b. in the '**Linked Status**' field, select '**Purchase Approved**'.
    c. click the '**Add**' button.
9. Click the '**Add Transition**' link next to '**Open**':
    a. in the '**Name**' field, type '**Approve Purchase**'.
    b. in the '**Destination Step**' field, select '**Purchase Approved**'.
    c. click the '**Add**' button.
10. Click the '**Add Transition**' link next to '**Purchase Approved**':
    a. in the '**Name**' field, type '**Start Progress**'.
    b. in the '**Destination Step**' field, select '**In Progress**'.
    c. click the '**Add**' button.
11. Click the '**Delete Transitions**' link next to '**Open**'. Select '**Start Progress**' and click the '**Delete**' button.
12. Click '**Workflow Schemes**' in the left navigation column (under '**Schemes**'). Then click '**Add Workflow Scheme**'.
13. In the '**Name**' field, type '**Purchase Order Workflow Scheme**'. In the '**Default Screen**' field, select '**Purchase Order Screen**'. Then click the '**Add**' button'. (For more about Workflow Schemes, please see the documentation.)
14. Click the '**Workflows**' link next to '**Purchase Order Workflow Scheme**', click '**Assign Workflow**' and select '**Purchase Order Workflow**'. Then click the '**Add**' button.
15. Click '**Projects**' in the left navigation column. Then in the '**Name**' column, click '**Purchase Orders**'. The project details will be displayed.
16. Click the '**Select**' link next to the '**Workflow Scheme**' field, select '**Purchase Order Workflow Scheme**' and click the '**Associate**' button.

To test what you have done, create an issue in the '**Purchase Orders**' project. After you save the issue, the left column should contain a link called '**Approve Purchase**', but not a link called '**Start Progress**'.

Note: you may also want to watch the video on customising JIRA Workflow.

14. Using Permission Schemes, Groups and Project Roles

Why would I do this? (click to expand)

A Permission scheme allows you to grant people 'permission' to work on issues in a project. The new project that you created previously is using JIRA's **Default Permission Scheme**. If you end up creating lots of projects, you might need to grant different people permission to work on different projects.
For example, if your organisation requires all software development issues to be tested by a Quality Assurance person before being closed, you could create a permission scheme called '**Software Development Permission Scheme**' in which you assign the 'Close Issue' permission to the appropriate people. You would then associate your new permission scheme with all your software development projects.
There are a number of ways to do this, depending on your requirements:

- Project roles enable you to associate *different people* with particular functions, for particular projects.
- Groups enable you to associate *the same people* with a particular function, for all projects that use this permission scheme.

How do I do this? (click to expand)

To add a new permission scheme called '**Software Development Permission Scheme**', and a project role called '**Quality Assurance**':

1. Create a project role called '**Quality Assurance**':
   a. Click '**Administration**' in the top navigation bar.
   b. Click '**Project Roles**' (under '**Users, Groups and Roles**') in the left column.
   c. In the '**Name**' field, type '**Quality Assurance**'. Then click the '**Add Project Role**' button.
2. Create a permission scheme called '**Software Development Permission Scheme**', in which you assign the 'Close Issue' permission to the '**Quality Assurance**' project role:
   a. Click '**Permission Schemes**' (under '**Schemes**) in the left column.
   b. Click the '**Copy**' link next to '**Default Permission Scheme**'. A new permission scheme called '**Copy of Default Permission Scheme**' will be created.
   c. Click the '**Edit**' link next to '**Copy of Default Permission Scheme**'. On the '**Edit**' screen,
      i. change the '**Name**' to '**Software Development Permission Scheme**'
      ii. change the '**Description**' to '**Permission scheme for software development projects**'. Then click the '**Update**' button.
   d. Click the '**Permissions**' link next to '**Copy of Default Permission Scheme**'. On the '**Edit Permissions**' screen,
      i. for the '**Close Issues**' permission, click the '**Delete**' link next to '**Project Role (Developers)'**.
      ii. for the '**Close Issues**' permission, click the '**Add**' link. Click '**Project Role**' and choose '**Quality Assurance**'. Then click the '**Add**' button.
3. Associate the '**Software Development Permission Scheme**' with all your software development projects. Do the following for each relevant project:
   a. Click '**Projects**' in the left navigation column. Then in the '**Name**' column, click the name of the relevant project. The project details will be displayed.
   b. Click the '**Select**' link next to the '**Permission Scheme**' field, select '**Software Development Workflow Scheme**' and click the '**Associate**' button.
4. For each software development project, add the appropriate people to the '**Quality Assurance**' project role:
   a. Click '**Projects**' in the left navigation column. Then in the '**Name**' column, click the name of the relevant project. The project details will be displayed.
   b. Click the '**View members**' link next to '**Project Roles**'.
   c. Select the '**Edit**' link next to '**Quality Assurance**' and add the appropriate people.

Or, to add a new permission scheme called '**Software Development Permission Scheme'**, and a group called '**quality-assurance**':

1. Create a group called '**quality-assurance**', and add the appropriate people to it.
   a. Click '**Administration**' in the top navigation bar.
   b. Click '**Groups**' (under '**Users, Groups and Roles**') in the left column.
   c. In the '**Name**' field, type '**quality-assurance**'. Then click the '**Add Group**' button.
2. Create a permission scheme called '**Software Development Permission Scheme**', in which you assign the 'Close Issue' permission to the '**quality-assurance**' group.
   a. Click '**Permission Schemes**' (under '**Schemes**) in the left column.
   b. Click the '**Copy**' link next to '**Default Permission Scheme**'. A new permission scheme called '**Copy of Default Permission Scheme**' will be created.
   c. Click the '**Edit**' link next to '**Copy of Default Permission Scheme**'. On the '**Edit**' screen,
      i. change the '**Name**' to '**Software Development Permission Scheme**'
      ii. change the '**Description**' to '**Permission scheme for software development projects**'. Then click the '**Update**' button.
   d. Click the '**Permissions**' link next to '**Copy of Default Permission Scheme**'. On the '**Edit Permissions**' screen,
      i. for the '**Close Issues**' permission, click the '**Delete**' link next to '**Project Role (Developers)'**.
      ii. for the '**Close Issues**' permission, click the '**Add**' link. Click '**Group**' and choose '**quality-assurance**'. Then click the '**Add**' button.
3. Associate the '**Software Development Permission Scheme**' with all your software development projects. Do the following for each relevant project:
   a. Click '**Projects**' in the left navigation column. Then in the '**Name**' column, click the name of the relevant project. The project details will be displayed.
   b. Click the '**Select**' link next to the '**Permission Scheme**' field, select '**Software Development Workflow Scheme**' and click the '**Associate**' button.

15. Installing Plugins

Why would I do this? (click to expand)

You can install plugins to add new functionality to JIRA (e.g. additional gadgets or reports), or to change the behaviour of existing features.

How do I do this? (click to expand)

Once you have downloaded or created your plugin jar file, follow these steps to install it in your JIRA instance:

1. Shut down JIRA.
2. Copy your plugin jar (e.g. '**EXAMPLE_PLUGIN.jar**') into the appropriate plugins directory:
   - If you are installing a '**Version 1**' plugin, copy the jar into your JIRA installation directory under `atlassian-jira/WEB-INF/lib/`.
   - If you are installing a '**Version 2**' (OSGi) plugin, copy the jar into your JIRA home directory under `plugins/installed-plugins/`.

     To find out whether a plugin is Version 1 or Version 2, check the Plugin Exchange. Note that plugins have different versions, and older builds of plugins may be **Version 1**.
3. Start up JIRA.
4. Go to 'Administration > Plugins'. Your plugin (e.g. '**EXAMPLE_PLUGIN**') will be listed and enabled.

For more details please see the documentation.

Important Next Steps

(Note that you need to be an Administrator to do the tasks in this section.)

16. Connecting to an External Database

Before using JIRA as a production system, you need to switch from the default HSQL database, which is provided for evaluation purposes only. Please see the documentation for details.

17. Backing up Data

To back up your JIRA data, and establish processes for regular backups, please see the documentation.

Thank you for using JIRA.

Thanks for choosing JIRA. We're always happy to help. Feel free to email or call us with any questions you have.

JIRA User's Guide

This manual contains information on how to use JIRA, the issue tracking and project management system that you access from your web browser.

JIRA Concepts

- What is an Issue
- What is a Project
- What is Workflow

Getting Started

- Logging in to JIRA
- Exploring the JIRA Workspace
- Using Keyboard Shortcuts

Working with Issues

- Attaching a File
- Attaching a Screenshot
- Cloning an Issue
- Commenting on an Issue
- Creating an Issue
- Creating a Sub-Task
- Editing Rich-Text Fields
- Labelling an Issue
- Linking Issues
- Logging Work on an Issue
- Modifying Multiple ('Bulk') Issues
- Moving an Issue
- Scheduling an Issue
- Setting Security on an Issue
- Viewing an Issue's Change History
- Viewing an Issue's Crucible Reviews
- Viewing an Issue's FishEye Changesets

- Viewing the Bamboo Builds related to an Issue
- Watching and Voting on an Issue

Searching for Issues

- Receiving Search Results as an RSS Feed
- Using Quick Search
- Customising your Issue Navigator
- Exporting Search Results to Microsoft Word
- Exporting Search Results to Microsoft Excel
- Receiving Search Results via Email
- Displaying Search Results as a Chart
- Using the Issue Navigator
- Saving Searches ('Issue Filters')
- Performing Text Searches
- Advanced Searching
- Displaying Search Results in XML

Generating Reports

- Workload Pie Chart Report
- User Workload Report
- Version Workload Report
- Time Tracking Report
- Single Level Group By Report
- Created vs Resolved Issues Report
- Resolution Time Report
- Pie Chart Report
- Average Age Report
- Recently Created Issues Report
- Time Since Issues Report

Browsing a Project

- Browsing a Project's Summary
- Browsing a Project's Issues
- Browsing a Project's Road Map
- Browsing a Project's Change Log
- Browsing a Project's Popular Issues
- Browsing a Project's Versions
    - Browsing a Version's Summary
    - Browsing a Version's Issues
    - Browsing a Version's Popular Issues
    - Browsing a Version's Bamboo Builds
- Browsing a Project's Components
    - Browsing a Component's Summary
    - Browsing a Component's Issues
    - Browsing a Component's Road Map
    - Browsing a Component's Change Log
    - Browsing a Component's Popular Issues
- Browsing a Project's Labels
- Browsing a Project's Bamboo Builds
- Browsing a Project's FishEye Changesets
- Browsing a Project's Crucible Reviews
- Viewing a Project's Burndown Chart

Customising the Dashboard

- Changing the Look and Behaviour of a Gadget
- Managing Multiple Dashboard Pages
- Adding the Activity Stream Gadget
- Adding the Administration Gadget
- Adding the Assigned To Me Gadget
- Adding the Average Age Gadget
- Adding the Bamboo Charts Gadget
- Adding the Bamboo Plan Summary Chart Gadget
- Adding the Bamboo Plans Gadget
- Adding the Bugzilla ID Search Gadget
- Adding the Calendar Gadget
- Adding the Clover Coverage Gadget
- Adding the Created vs Resolved Gadget
- Adding the Crucible Charts Gadget
- Adding the Favourite Filters Gadget
- Adding the Filter Results Gadget
- Adding the FishEye Charts Gadget
- Adding the FishEye Recent Changesets Gadget
- Adding the In Progress Gadget
- Adding the Introduction Gadget

- Adding the Issue Statistics Gadget
- Adding the JIRA News Gadget
- Adding the Pie Chart Gadget
- Adding the Projects Gadget
- Adding the Quick Links Gadget
- Adding the Recently Created Issues Gadget
- Adding the Resolution Time Gadget
- Adding the Road Map Gadget
- Adding the Text Gadget
- Adding the Time Since Issues Gadget
- Adding the Two-Dimensional Filter Statistics Gadget
- Adding the Voted Issues Gadget
- Adding the Watched Issues Gadget
- Adding the Heat Map Gadget
- Adding the Labels Gadget

Managing your User Profile

- Adding a User Avatar
- Allowing OAuth Access
- Changing your Password
- Choosing a Language
- Using Hover Profile

Note: for information on configuring JIRA, please see the *JIRA Administrator's Guide.*

JIRA Concepts

The following pages contain information on key concepts in JIRA:

- What is an Issue
- What is a Project
- What is Workflow

What is an Issue

Different organisations use JIRA to track different kinds of issues. Depending on how your organisation is using JIRA, an issue could represent a software bug, a project task, a helpdesk ticket, a leave request form, etc.

A JIRA issue typically looks like this:

Full Size

Your JIRA issues may look different to the above screenshot if your administrator has customised JIRA for your organisation.

The numbered fields shown in the above screenshot are:

1. **Project** — the 'parent' project to which the issue belongs.
2. **Key** — a unique identifier for this issue. (The characters to the left of the hyphen represent the project to which this issue belongs.)
3. **Summary** — a brief one-line summary of the issue.
4. **Type** — see below for a list of types.
5. **Status** — the stage the issue is currently at in its lifecycle ('workflow'). See below for a list of statuses.
6. **Priority** — the importance of the issue in relation to other issues. (See below for a list of priorities).
7. **Resolution** — a record of the issue's resolution, if the issue has been resolved or closed. (See below for a list of resolutions).
8. **Affects Version(s)** *(if applicable)* — project version(s) for which the issue is (or was) manifesting.
9. **Fix Version(s)** *(if applicable)* — project version(s) in which the issue was (or will be) fixed.
10. **Component(s)** *(if applicable)* — project component(s) to which this issue relates.
11. **Labels(s)** *(if applicable)* — labels to which this issue relates.
12. **Environment** *(if applicable)* — the hardware or software environment to which the issue relates.
13. **Description** — a detailed description of the issue.
14. **Assignee** — the person to whom the issue is currently assigned.
15. **Reporter** — the person who entered the issue into the system.
16. **Watches** — the number of people who are watching this issue.
17. **Due** *(if applicable)* — the date by which this issue is scheduled to be completed.
18. **Created** — the time and date on which this issue was entered into JIRA.
19. **Updated** — the time and date on which this issue was last edited.
20. **Resolved** — the time and date on which this issue was resolved.
21. **Estimate** — the **Original Estimate** of the total amount of time required to resolve the issue, as estimated when the issue was created.
22. **Remaining** — the **Remaining Estimate**, i.e. the current estimate of the remaining amount of time required to resolve the issue.
23. **Logged** — the sum of the **Time Spent** from each of the individual work logs for this issue.

Some of the most important fields — 'Type', 'Priority', 'Status' and 'Resolution' — are described as follows:

Issue Type

JIRA can be used to track many different types of issues. The default types are listed below, but please note that your JIRA administrator may have customised this list to suit your organisation.

Bug — A problem which impairs or prevents the functions of the product.
Improvement — An enhancement to an existing feature.
New Feature — A new feature of the product.
Task — A task that needs to be done.
Custom Issue — A custom issue type, as defined by your organisation if required.

Priority

An issue's priority indicates its relative importance. The default priorities are listed below; note that both the priorities and their meanings can be customised by your JIRA administrator to suit your organisation.

Blocker — Highest priority. Indicates that this issue takes precedence over all others.
Critical — Indicates that this issue is causing a problem and requires urgent attention.
Major — Indicates that this issue has a significant impact.
Minor — Indicates that this issue has a relatively minor impact.
Trivial — Lowest priority.

Status

Each issue has a status, which indicates where the issue currently is in its lifecycle ('workflow'). An issue starts as being 'Open', then generally progresses to 'Resolved' and then 'Closed'; or, depending on circumstances, it may progress to other statuses. Please also note that your JIRA administrator may have customised the available statuses to suit your organisation.

Open — This issue is in the initial 'Open' state, ready for the assignee to start work on it.

In Progress — This issue is being actively worked on at the moment by the assignee.

Resolved — A Resolution has been identified or implemented, and this issue is awaiting verification by the reporter. From here, issues are either 'Reopened' or are 'Closed'.

Reopened — This issue was once 'Resolved' or 'Closed', but is now being re-examined. (For example, an issue with a *Resolution* of 'Cannot Reproduce' is Reopened when more information becomes available and the issue becomes reproducible). From here, issues are either marked *In Progress, Resolved* or *Closed.*

Closed — This issue is complete.

Resolution

An issue can be resolved in many ways, only one of them being 'Fixed'. The default resolutions are listed below; note that your JIRA administrator may have customised these to suit your organisation.

Fixed — A fix for this issue has been implemented.
Won't Fix — This issue will not be fixed, e.g. it may no longer be relevant.
Duplicate — This issue is a duplicate of an existing issue. Note: it is recommended you create a link to the duplicated issue.
Incomplete — There is not enough information to work on this issue.
Cannot Reproduce — This issue could not be reproduced at this time, or not enough information was available to reproduce the issue. If more information becomes available, please reopen the issue.

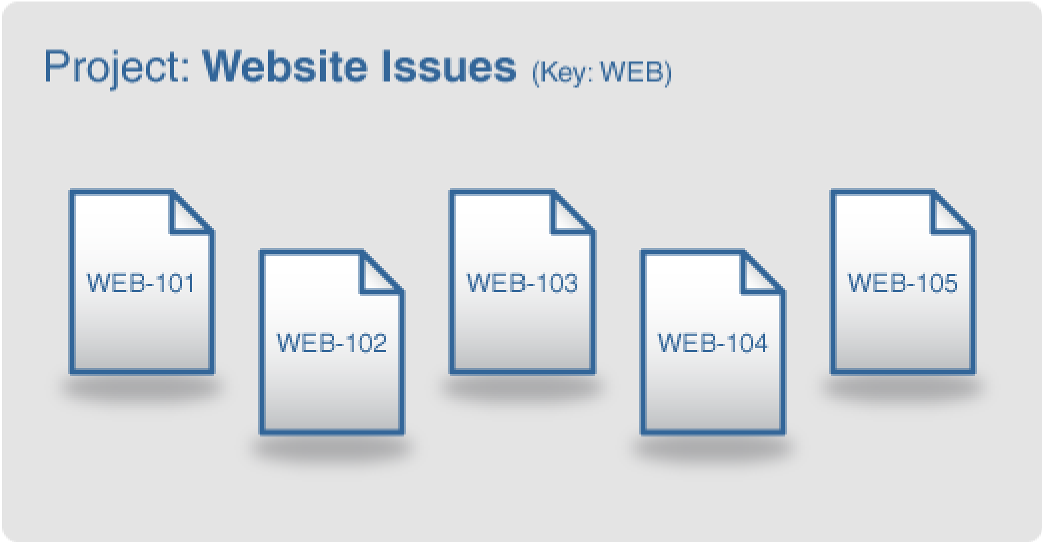
Note that once an issue has been resolved (that is, the issue's Resolution field is not empty), textual references to that issue will show the key in strikethrough text.

What is a Project

A JIRA project is a collection of issues, and is defined according to your organisation's requirements. For example, a JIRA project could be:

- a software development project
- a marketing campaign
- a helpdesk system
- a leave request management system
- a website enhancement request system

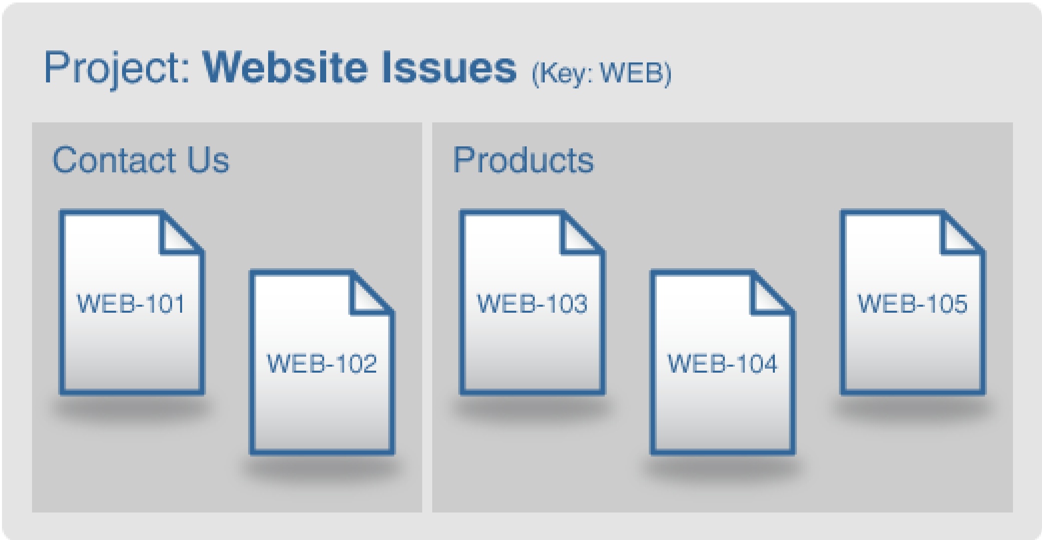
Every issue belongs to a project. Each project has a *name* (e.g. **Website Issues**) and a *key* (e.g. **WEB**). The project key becomes the first part of that project's *issue keys,* e.g. **WEB-101, WEB-102,** etc:



What is a component?

A project component is a logical grouping of issues within a project. Each project may consist of various components (or none), depending on your organisation's needs.

For example, a software development project could consist of components called 'Documentation', 'Backend', 'Email Subsystem', 'GUI'. A website enhancement request system might consist of components called 'Products', 'Contact Us', etc:



An issue can belong to zero, one or multiple components within a project.

What is a version?

For some types of projects, particularly software development, it is useful to be able to associate an issue with a particular project *version* (e.g. 1.0 beta, 1.0, 1.2, 2.0).

Issues have two fields that relate to versions:

- **Affects Version(s)** — this is the version(s) in which the issue is manifesting. For instance, a software bug might affect versions 1.1 and 1.2.
- **Fix Version(s)** — this is the version(s) in which the issue was (or will be) fixed. For instance, the bug affecting versions 1.1 and 1.2 might be fixed in version 2.0. Note that issues which do not have a **Fix Version** are classified as 'Unscheduled', as shown in the screenshot above.

Versions can be in one of three states: **Released, Unreleased** or **Archived.** Versions can also have a *Release Date,* and will automatically be highlighted as 'overdue' if the version is Unreleased when this date passes.

Additional Resources

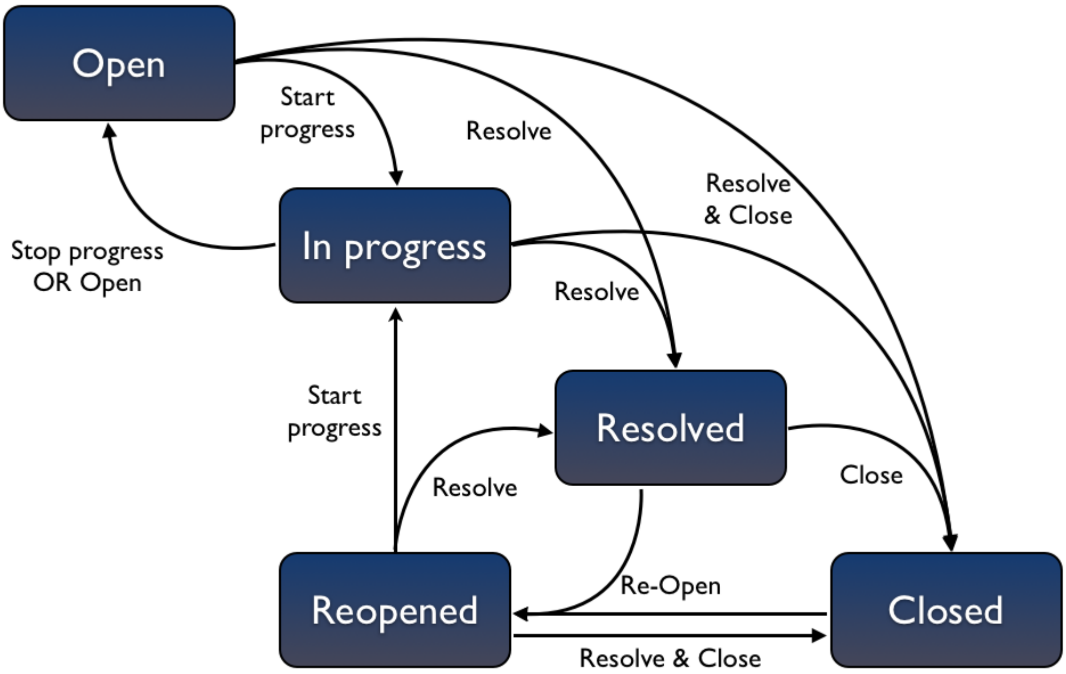
- See 'Browsing a Project' for information on looking up a project's structure and issues.
- See the *JIRA Administrator's Guide* for information on defining projects, components and versions.
- Watch the 'Adding a Project' tutorial video to see how a project is added in JIRA. Please note the JIRA version and JIRA edition of the tutorial video before watching.

What is Workflow

Workflow is the movement (or **transition**) of an issue through various **Statuses** during its lifecycle.

The following diagram shows JIRA's default workflow, where:

- each **status** is represented by a blue box
- each **transition** is indicated by an arrow.



JIRA's workflow can also be customised by your JIRA administrator.

Getting Started

The following pages contain information to help you get started using JIRA:

- Logging in to JIRA
- Exploring the JIRA Workspace
- Using Keyboard Shortcuts

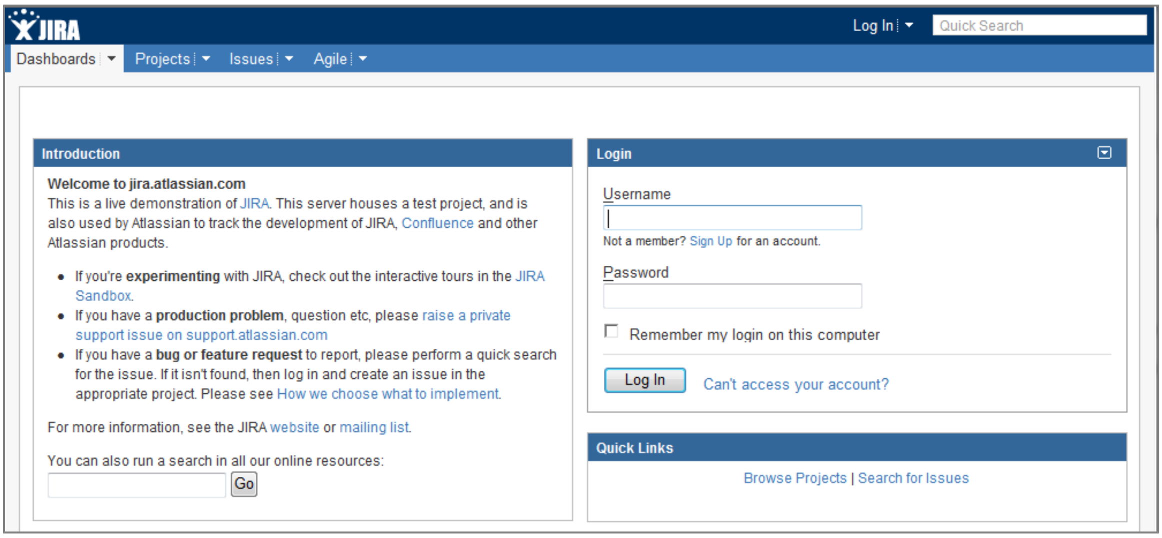
Logging in to JIRA

Many JIRA instances will have permissions implemented that restrict issues and issue actions to certain users and user groups. Some JIRA instances may not permit anonymous access. In these scenarios, you will be prompted to log in to JIRA.

The **Login** panel will be displayed if you have not logged in to JIRA. There are three things you can do here:

1. **Log into JIRA:** To log in to JIRA, enter your **'Username'** and **'Password'** and click the **'Log In'** button.
   Selecting the ***'Remember my login on this computer'*** *check box will prevent you from being automatically logged out of JIRA. However, your session will not be preserved, e.g. last search, current project, etc.*
2. **Reset your password:** To reset your password, click the **'Forgot Password'** link. The reset password page will display. Enter your **'Username'** and a new password will be emailed to the email address specified in your JIRA user profile. If you have forgotten your email address, you will need to contact your JIRA administrator for help.
3. **Sign up for an account:** If you do not have a user account and your JIRA administrator has enabled public signup, you can create your own user account by clicking the **'Sign up'** link in the 'Not a member? Sign up for an account' text. Enter your details and click the **'Sign up'** button to create your account.

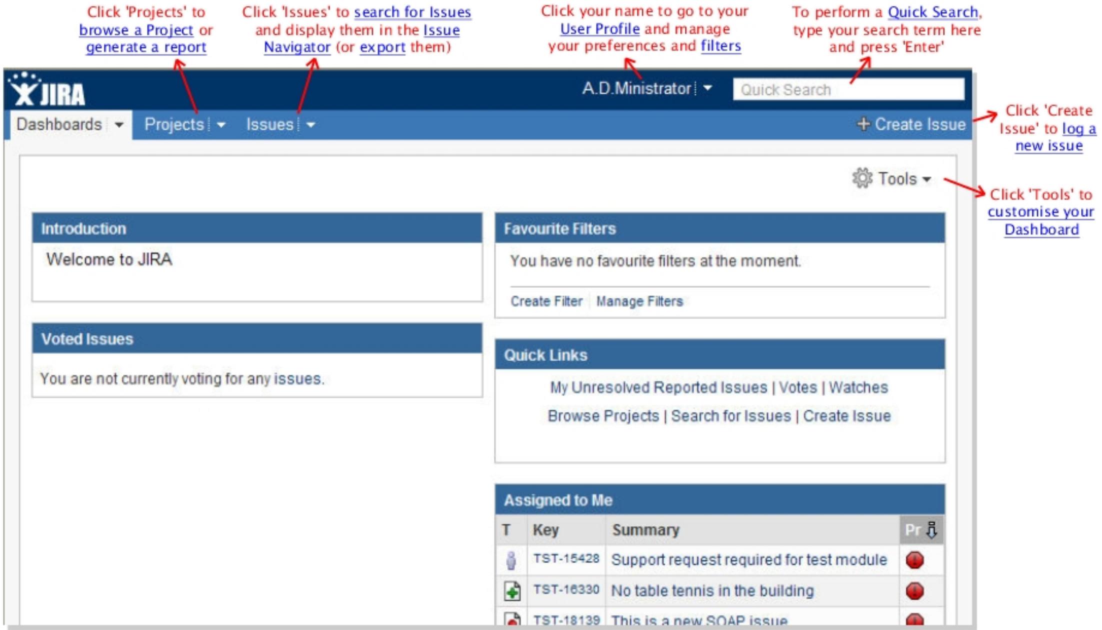
Please note that your JIRA screen may look different from the following screenshot as the dashboard and colours may have been customised by your JIRA administrator. The links, however, will be the same.



Exploring the JIRA Workspace

The **Dashboard** is the first screen you see when you login to JIRA.

- The navigation bar (at the top of the screen) is the same on every screen in JIRA. It contains links which give you quick access to many of JIRA's most useful functions.
- The white area of the screen, below the top navigation bar, can be customised to display 'gadgets' showing many different types of information, depending on your areas of interest.



Please note that your JIRA screen may look different from this screenshot, as the logo and colours may have been customised by your JIRA administrator. The links in the navigation bar, however, will be the same.

Using Keyboard Shortcuts

Keyboard shortcuts provide a quick and easy way of navigating though JIRA and performing fundamental actions on issues without having to take your fingers off the keyboard.

You may not have permission to perform all the keyboard shortcut actions described on this page. This depends on how your JIRA administrator(s) have configured permissions for your user account.

On this page:

- Keyboard Shortcuts
  - Global Shortcuts
  - 'View Issue' and 'Issue Navigator' Shortcuts
  - Form Shortcuts
- Modifier Keys
- Accessing the Keyboard Shortcuts Dialog Box
- Disabling and Re-enabling Keyboard Shortcuts
- RELATED TOPICS

Keyboard Shortcuts

Global Shortcuts

These shortcuts are available from any JIRA screen.

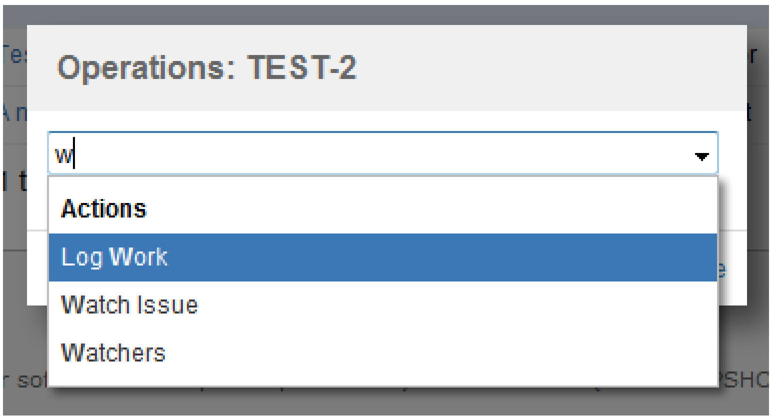
Operation	Keyboard Shortcut	Description
Go to Dashboard	'g' then 'd'	Directs you to the Dashboard screen.
Browse to a Project	'g' then 'p'	Directs you to your current project browser screen.
Find Issues	'g' then 'i'	Opens the Issue Navigator, where you can search for issues using either the Simple Search or Advanced Search features.
Quick Search	'/'	Directs your cursor to the Quick Search text field in the top right-hand corner.
Create an Issue	'c'	Opens the Create Issue page or the project and issue type selection bubble for creating an issue.
Open shortcut help	'?'	Opens the keyboard shortcuts dialog box (described below). To close this dialog box, press the 'Esc' key or click '**Close**' in the lower-right of the box.
Dashboards drop-down menu	Modifier key(s) + 'd'	Opens the 'Dashboards' drop-down menu in the top navigation bar. You can then use the arrow keys to navigate to an item, then press 'Enter' to select it. Modifier Keys are specific to each combination of browser and operating system. Refer to the Modifier Keys section below for more details.
Projects drop-down menu	Modifier key(s) + 'p'	Opens the 'Projects' drop-down menu in the top navigation bar. You can then use the arrow keys to navigate to an item, then press 'Enter' to select it.
Issues drop-down menu	Modifier key(s) + 'i'	Opens the 'Issues' drop-down menu in the top navigation bar. You can then use the arrow keys to navigate to an item, then press 'Enter' to select it.
Administration drop-down menu	Modifier key(s) + 'a'	Opens the 'Administration' drop-down menu in the top navigation bar (if available). You can then use the arrow keys to navigate to an item, then press 'Enter' to select it.

'View Issue' and 'Issue Navigator' Shortcuts

These shortcuts are available from JIRA's View Issue and Issue Navigator screens only. These shortcuts allow you to:

- navigate through a list of issues and between individual items on an issue, and
- perform actions and other operations on an issue.

Operation	Keyboard Shortcut	Description	Availability
View Selected Issue	'o' or 'Enter'	Opens the currently selected issue on the **Issue Navigator**.	Issue Navigator
Next Issue	'j'	Navigates to the next issue. This keyboard shortcut only applies to a **View Issue** screen if you got there via the **Issue Navigator**.	View Issue and Issue Navigator
Previous Issue	'k'	Navigates to the previous issue. This keyboard shortcut only applies to a **View Issue** screen if you got there via the **Issue Navigator**.	View Issue and Issue Navigator

Back to the Navigator	'u'	Returns to the **Issue Navigator** from the **View Issue** screen. This keyboard shortcut only applies to a **View Issue** screen if you got there via the **Issue Navigator**.	View Issue
Hide/Show Left Section	'[' (left square bracket)	Hides or shows the left section on the **Issue Navigator**.	Issue Navigator
Next Activity	'n'	Navigates to the next item in the activity section of the **View Issue** screen.	View Issue
Previous Activity	'p'	Navigates to the previous item in the activity section of the **View Issue** screen.	View Issue
Focus Search Field	'f'	Focuses the cursor in the Advanced Search text field or the Simple Search's Query text field.	Issue Navigator
Escape Field	'Esc'	Escapes the cursor out of the current text field so that you can use more keyboard shortcuts. Pressing the 'Esc' key can also be used to **Close** or **Cancel** JIRA's dialog boxes. If the auto-complete dropdown list is visible on the Advanced Search text field, you must press the 'Esc' key twice to escape the cursor out of this text field.	View Issue and Issue Navigator
Edit Issue	'e'	Opens the **Edit Issue** page (if you have appropriate permission), where you can edit the issue.	View Issue and Issue Navigator
Assign Issue	'a'	Opens the **Assign** dialog box (if you have appropriate permission), where you can assign the issue to another JIRA user.	View Issue and Issue Navigator
Comment on Issue	'm'	On the **View Issue** screen, this opens the comment panel at the top of the page and focuses on the comment text box. On the **Issue Navigator**, this opens the **Add Comment** dialog box for adding a comment to the currently selected issue.	View Issue and Issue Navigator
Edit Issue Labels	'l' (lower-case 'L')	Opens the **Labels** dialog box, where you can edit the labels associated with the issue.	View Issue and Issue Navigator
Operations Dialog Box	'.' (full-stop/period)	Opens the **Operations** dialog box, from which you can perform any issue operation on the current JIRA issue by doing either of the following: • Type the 'Cursor Down' key, then: 1. use the cursor keys to select an issue operation, and 2. press 'Enter' to choose your selected operation. • Type one to a few letters of the issue operation's name to restrict the list down to operations whose names match the series of letters you entered, then: 1. if there is more than one operation in the restricted list, use the cursor keys to select one, and 2. press 'Enter' to choose your selected operation. *Screenshot: The Operations Dialog Box*  The list of issue operations available in the drop-down menu are split into the following categories:	View Issue and Issue Navigator

- **Workflow** Transitions — Choose the appropriate workflow transition to change the issue's status. The workflow transitions available depend on the current issue's status and on how your JIRA administrator has customised your JIRA workflow. The default JIRA workflow transitions include:
  - **Start Progress** — Set the issue's Status to **In Progress**.
  - **Resolve issue** — Set the issue's Status to **Resolved** and select the appropriate Resolution.
  - **Close issue** — Set the issue's Status to **Closed** and if the issue has not already been **Resolved**, select the appropriate Resolution.
  - **Reopen issue** — Set a **Resolved** or **Closed** issue's Status to **Reopened**.
- **Actions** — Choose the appropriate action to perform on the issue.
  - **Edit** — Edit the issue's details (**Summary, Description,** etc).
  - **Assign** — Select an asignee for the issue.
  - **Assign To Me** — Assign the issue to yourself.
  - **Comment** — Add a comment to the issue.
  - **Log Work** — Record the work done and time spent on the issue. This option is only available if Time Tracking has been activated on your JIRA site.
  - **Attach Files** — Select a file, upload it and attach it to the issue.
  - **Attach Screenshot** — Select a file, upload it and attach it to the issue.
  - **Voters** — Opens the Voters list of the issue, where you can manage your vote and see others who have voted on the issue too.
  - **Add Vote** — Adds your vote to the issue. (This option is only available if you did not create the issue.)
  - **Watch Issue** — Become a watcher of the issue.
  - **Stop Watching** — Stop watching the issue. (This option is only available on issues you are currently watching.)
  - **Watchers** — Opens the Watchers List, where you can manage watchers of the issue.
  - **Create Sub-Task** — Create a new issue which is a sub-task of the issue.
  - **Convert to Issue** — If the issue is a sub-task, convert it to a standalone issue.
  - **Convert to Sub-Task** — If the issue is a standalone issue, convert it to a sub-task.
  - **Move** — Move the issue to a different project.
  - **Link** — Create a link between the issue and another issue. This option is only available if Issue Linking has been enabled on your JIRA site.
  - **Clone** — Create a new issue which is an identical copy of the issue.
  - **Labels** — Edit the issue's labels.
  - **Delete** — Permanently remove the issue.

> Note that some options in the **Actions** menu will only be available if you have the necessary permissions, or if certain features have been enabled by your JIRA administrator.

Form Shortcuts

These shortcuts are available on JIRA forms, including those involved in editing an issue's fields, such as the Create Issue or Edit Issue forms and JIRA login forms.

Operation	Keyboard Shortcut	Description
Form Submit	Modifier key(s) + 's'	Submits any currently open form in JIRA. The keyboard shortcuts dialog box will show which modifier key (or keys) are required for your combination of web browser and operating system. Modifier Keys are specific to each combination of browser and operating system. Refer to the Modifier Keys section below for more details.
Cancel Form	Modifier key(s) + ` (backquote)	Cancels any currently open form in JIRA.
Escape Field	'Esc'	Escapes the cursor out of any field on the currently open form, so that you can use more keyboard shortcuts. Pressing the 'Esc' key can also be used to **Close** or **Cancel** JIRA's dialog boxes.
Back	'u'	Returns to the **View Issue** screen from any form that results from an action performed on that issue. You must have escaped out of all fields on the form (by pressing 'Esc') before using this keyboard shortcut.
'Remember my login' check box	Modifier key(s) + 'r'	Automatically selects the 'Remember my login on this computer' check box. This shortcut only applies to JIRA's login forms.

Modifier Keys

If a keyboard shortcut requires modifier keys, one or two of these modifier keys (for example, 'Shift', 'Alt' or 'Ctrl') must be pressed simultaneously, along with a single 'action' key. In the shortcuts dialog box, these keystrokes are indicated as 'modifier (+ modifier) + x', where 'x' is an action key, with the exception of a 'Shift + x' key combination.

Modifier keys differ depending on your combination of operating system and web browser. For example, when running Firefox on Mac OS X, you will need to press 'Ctrl' + 'S' to submit a form, while on Windows, you will need to press 'Alt' + 'S'. The following table identifies the modifier keys for the various combinations of supported web browsers and operating systems:

Web Browser	Mac OS X	Windows	UNIX/Linux
Firefox	Ctrl	Alt + Shift	Alt + Shift
Internet Explorer		Alt	
Safari	Ctrl + Alt	Ctrl	

Please note:

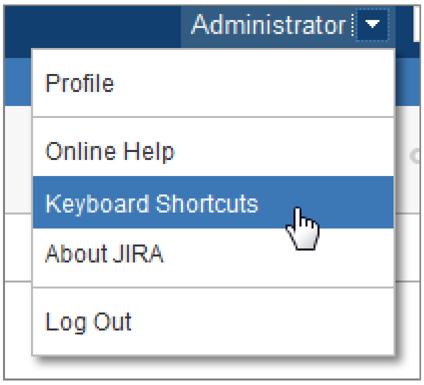
- **Modifier key shortcuts** differ from **two-key shortcuts**. For the latter, one discrete keystroke follows another (without the keys being pressed simultaneously). In the shortcuts dialog box, **two-key shortcuts** are indicated as 'x then y', where 'x' is the first keystroke and 'y' is the second.
- In Internet Explorer, typing a 'Modifier key shortcut' that leads to a link results in the link being highlighted only. Hence, after typing a modifier key shortcut, you will then need to press the 'Enter' key to complete the action - for example, to open a link's drop-down menu. The actions of modifier key shortcuts that lead to buttons, however, are fully completed.
- In Firefox, it is possible to customise 'Modifier key shortcuts'. Please read Mozilla's Ui.key.contentAccess documentation for more information.

Accessing the Keyboard Shortcuts Dialog Box

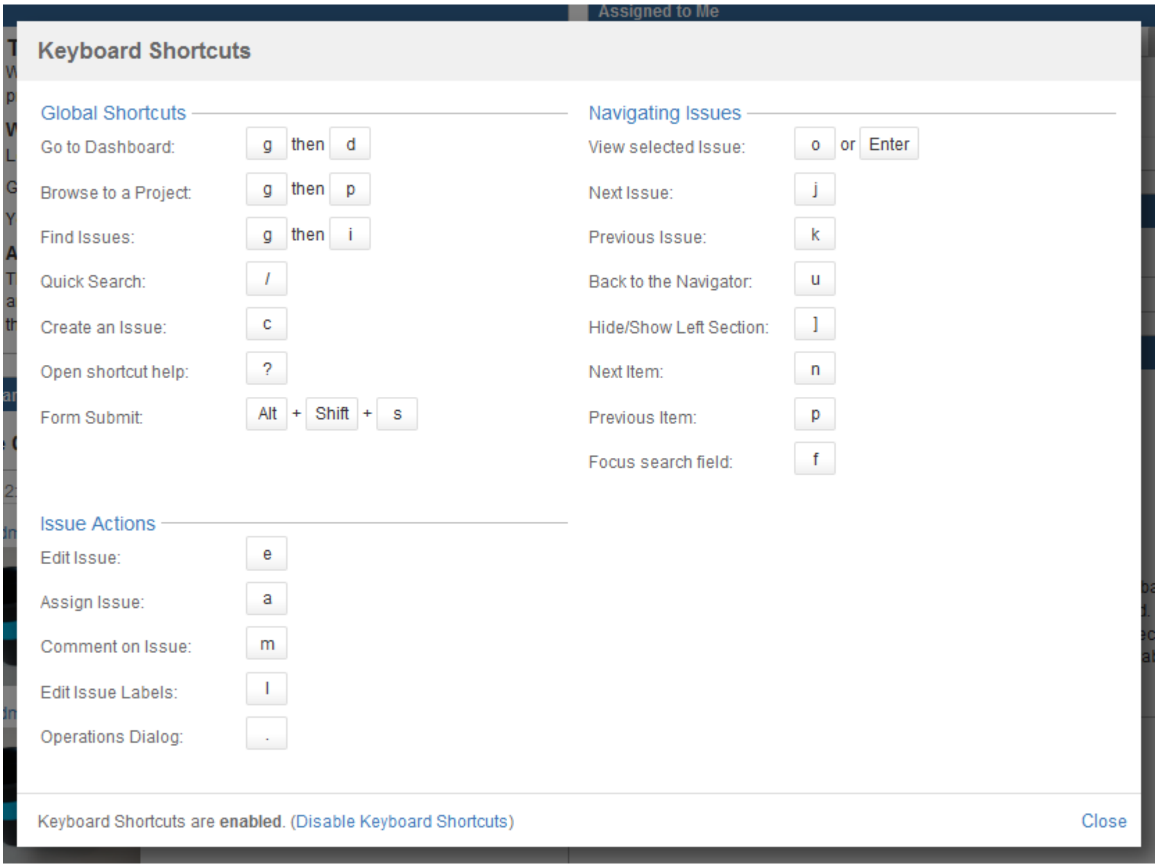
The keyboard shortcuts dialog box shows an overview of JIRA actions that are available as keyboard shortcuts and the combination of keystrokes required to perform them.

You can quickly open this dialog box by pressing '?' ('Shift + /') on your keyboard, or by clicking your username's dropdown and selecting '**Keyboard Shortcuts**' from the list.

Screenshot: Accessing 'Keyboard Shortcuts' from Your Username's Dropdown



Screenshot: Keyboard Shortcuts Dialog Box in Firefox on Windows



- Be aware that when you press '?', the keyboard shortcuts dialog box will not appear if your cursor is already focused inside any JIRA text entry field. Press 'Esc' first to escape from a field.
- If you have GreenHopper installed, you will see a series of **Agile** keyboard shortcuts in the lower-right of this dialog box (and some additional **Global** keyboard shortcuts specific to GreenHopper in the upper-left section). However, the keyboard shortcuts in the **Agile Shortcuts** section only function in GreenHopper and not in a JIRA context.

Disabling and Re-enabling Keyboard Shortcuts

Keyboard shortcuts are enabled by default. However, you can disable them on a per-user basis via the Keyboard Shortcuts dialog box.

To disable or re-enable keyboard shortcuts:

1. Ensure you are logged in to JIRA and open the Keyboard Shortcuts dialog box (described above).
2. At the bottom of the Keyboard Shortcuts dialog box, click '**Disable Keyboard Shortcuts**' or '**Enable Keyboard Shortcuts**' to respectively disable or re-enable keyboard shortcuts for the currently logged in user.
   Alternatively, you can disable or re-enable keyboard shortcuts by editing the **Preferences** section of the Summary Tab of your User Profile.

RELATED TOPICS

- GreenHopper Keyboard Shortcuts
- Keyboard Shortcut Plugin Module

Working with Issues

The following pages contain information on working with issues:

- Attaching a File
- Attaching a Screenshot
- Cloning an Issue
- Commenting on an Issue
- Creating an Issue
- Creating a Sub-Task
- Editing Rich-Text Fields
- Labelling an Issue
- Linking Issues
- Logging Work on an Issue

- Modifying Multiple ('Bulk') Issues
- Moving an Issue
- Scheduling an Issue
- Setting Security on an Issue
- Viewing an Issue's Change History
- Viewing an Issue's Crucible Reviews
- Viewing an Issue's FishEye Changesets
- Viewing the Bamboo Builds related to an Issue
- Watching and Voting on an Issue

Attaching a File

JIRA allows you to attach files to an issue.

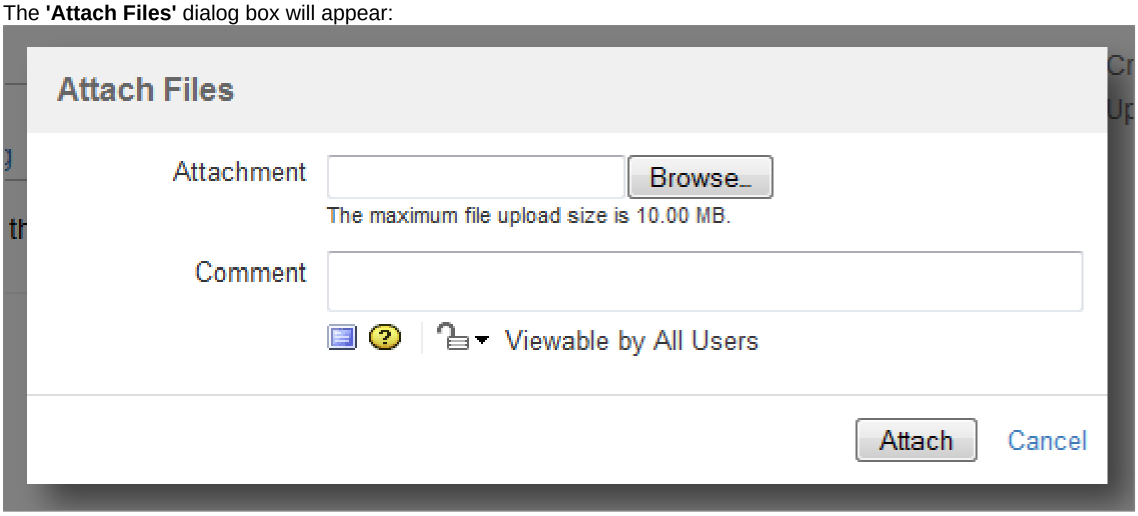
> To be able to attach files, your JIRA administrator must have enabled file attachments. You will also need the 'Create Attachments' permission in the appropriate projects.

On this page:

- Attaching a File to an Issue
- Viewing an Image Gallery
- Sorting Attachments
- Accessing ZIP-format File Contents
- Exporting All Attachments as a ZIP File
- Removing a File Attachment from an Issue

Attaching a File to an Issue

To attach a file to a JIRA issue:

1. Open the JIRA issue to which you wish to attach a file.
2. From the **More Actions** menu, select **'Attach File'**.
3. The **'Attach Files'** dialog box will appear:


4. Click the '**Browse**' button to search for your files.

> - You can attach more than one file at a time: after you select a file, it will appear at the top of the **Attach Files** dialog box, followed by each subsequent file you add via the **Browse** button.
> - If you select a file by mistake, clear its check box to prevent the file being attached to the issue.
> - By default, the maximum size of any one file is 10MB, although this limit can be customised by your JIRA administrator. See Configuring File Attachments for more information.
> - File names cannot contain any of these characters: `'\', '/','\"', '%', ':', '$', '?', '*'`.

5. (Optional) Enter a comment about the files(s) you are attaching.
   If you enter a comment, then you can also set the security level for the comment by selecting the appropriate value from the padlock icon dropdown. The security level for the comment is '`All Users`' by default.
6. Click the '**Attach**' button. All selected files will be attached to the issue.

Viewing an Image Gallery

By default, JIRA displays image files (ie. GIFs, JPGs, PNGs) attached to an issue, including any screenshots, as 'thumbnails' on the issue.

Screenshot: Viewing attached image files on an issue

If your JIRA administrator has disabled **Thumbnails** in JIRA's Attachment Settings, then JIRA will not display thumbnails of image files on an issue and instead, they will be part of the list of attached files.

You can click on an image's thumbnail to preview a larger version of it in a popup. If multiple images are attached to an issue, click the left and right arrows at the sides of an image preview to see previews of the adjacent attached images.

Screenshot: Previewing attached image files on an issue

Sorting Attachments

You can sort the list of attachments on JIRA issues in ascending or descending order according to the attachment file name or date of attachment to the issue. To do this:

1. Open a JIRA issue with attachments.
2. Click the down-arrow icon to the right of the **Attachments** section and select the required sort criteria or order options provided in the list.

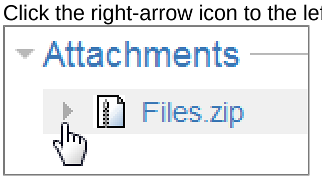
Your final sort criteria and order options will also apply to image thumbnails and all subsequent issues viewed.

Accessing ZIP-format File Contents

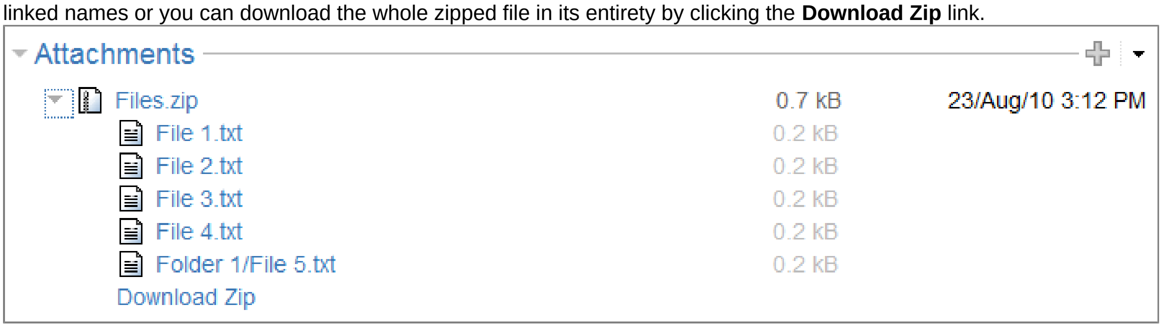
When viewing an issue, JIRA allows you to browse and access the contents of any ZIP-format file (such as those with a '`.zip`' or '`.jar`' file name extension) attached to an issue.

To browse the contents of a zipped attachment and access its files:

1. Open a JIRA issue with an attached zipped file.
2. Click the right-arrow icon to the left of the zipped file's name.



3. The contents of the zipped file are listed. From this expanded list, you can access the zipped file's individual files by clicking their linked names or you can download the whole zipped file in its entirety by clicking the **Download Zip** link.



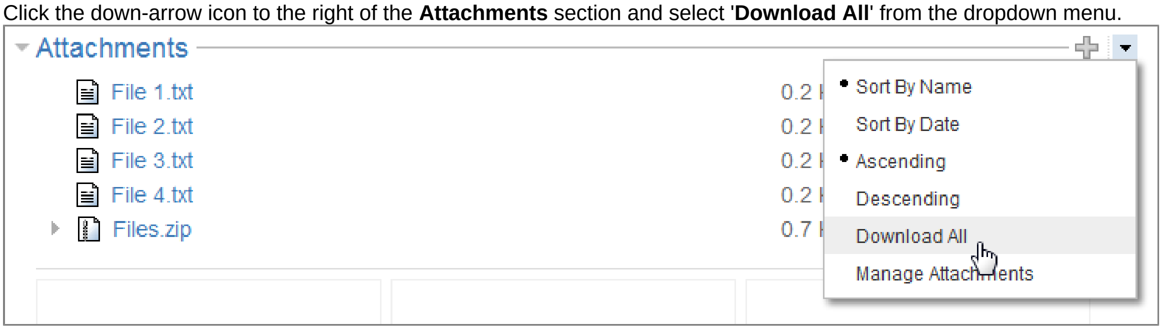
If a file is located within a subdirectory of the zipped file, then the path to that file is indicated in the content of the zipped file. For example, the content of **Files.zip** listed in the screenshot above shows that **File 5.txt** is located within the **Folder 1** subdirectory of **Files.zip**.

If your JIRA administrator has disabled **ZIP support** in JIRA's Attachment Settings, then this feature will not be available and you must download the zip file to your computer before accessing its individual files.

Exporting All Attachments as a ZIP File

To download all the files attached to an issue (including any screenshots) as a single ZIP file:

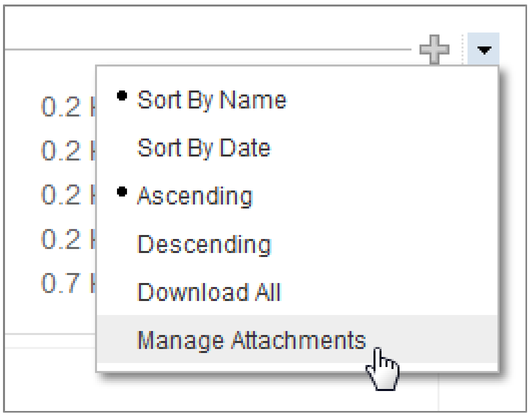
1. Open the JIRA issue from which you wish to export all attachments as a zip file.
2. Click the down-arrow icon to the right of the **Attachments** section and select '**Download All**' from the dropdown menu.



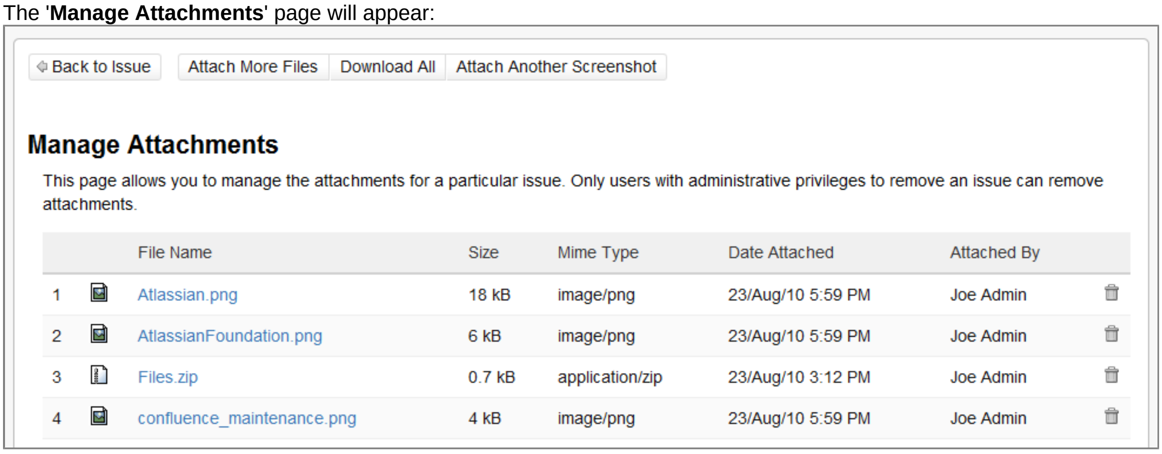
Removing a File Attachment from an Issue

To remove a file attachment from a JIRA issue:

1. Open the JIRA issue from which you wish to remove a file.
2. Click the down-arrow icon to the right of the **Attachments** section and select '**Manage Attachments**' from the dropdown menu.



3. The '**Manage Attachments**' page will appear:



4. Locate the file you wish to delete and click the '**Delete Attachment**' icon:

Attaching a Screenshot

JIRA allows you to attach screenshots you have captured to an issue, if the administrator has configured JIRA and your permissions appropriately.

> This feature is only available if:
>
> 1. Your JIRA administrator has file attachments enabled. (You will also need the 'Create Attachments' permission in the appropriate projects.)
> 2. You are using a Windows or Mac client. (If you use another operating system, you can attach a screenshot using the file attachment feature instead.)

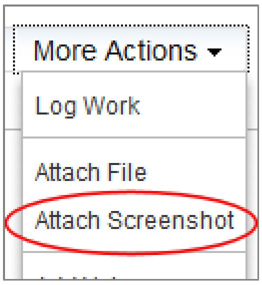
On this page:

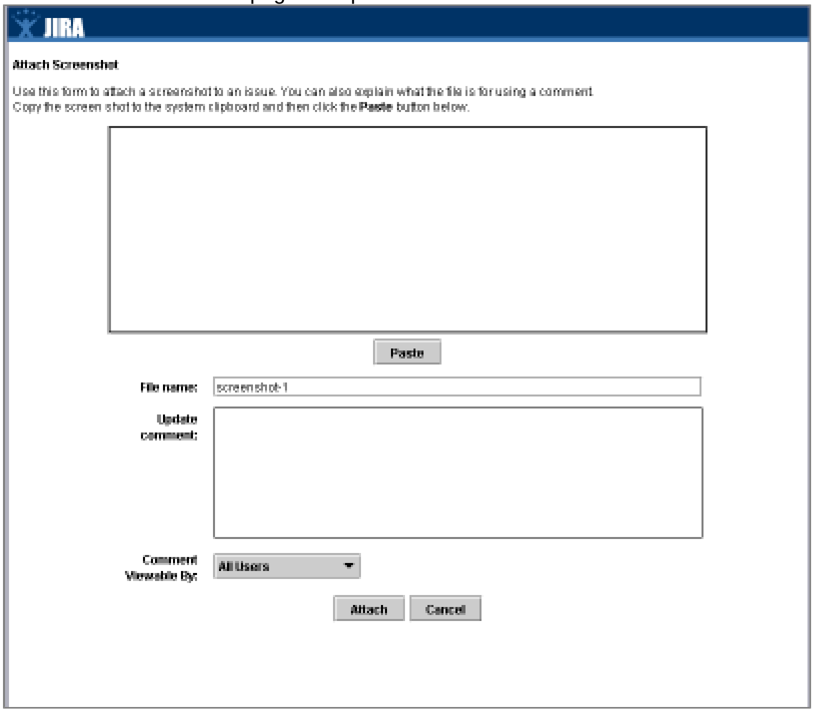
- Attaching a Screenshot
- Capturing Screenshots
  - Capturing a screenshot on Windows
  - Capturing a screenshot on Mac OSX

Attaching a Screenshot

To attach a screenshot:

1. Open the JIRA issue to which you wish to attach a file.
2. From the **'More Actions'** menu, select **'Attach Screenshot'**:



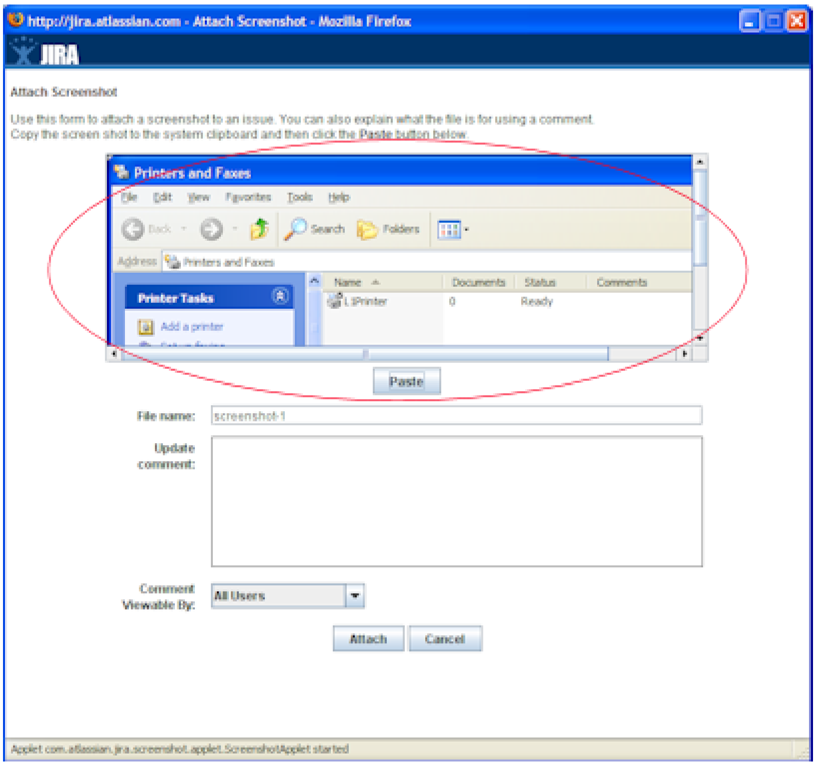
3. The **'Attach Screenshot'** page will open in a new browser window.


If this is the first time you have used this function, a security warning will also display in a dialog box asking you whether you want to trust the applet or not.


Choose the **'Yes'** option to trust the applet and access the **'Attach Screenshot'** page.

> JIRA uses an applet to run the **'Attach Screenshot'** functionality in the new browser window.

4. Ensure that you have captured an image to your operating system's clipboard and click the **'Paste'** button to paste the image. Your captured image should display in the blank area above the **'Paste'** button.

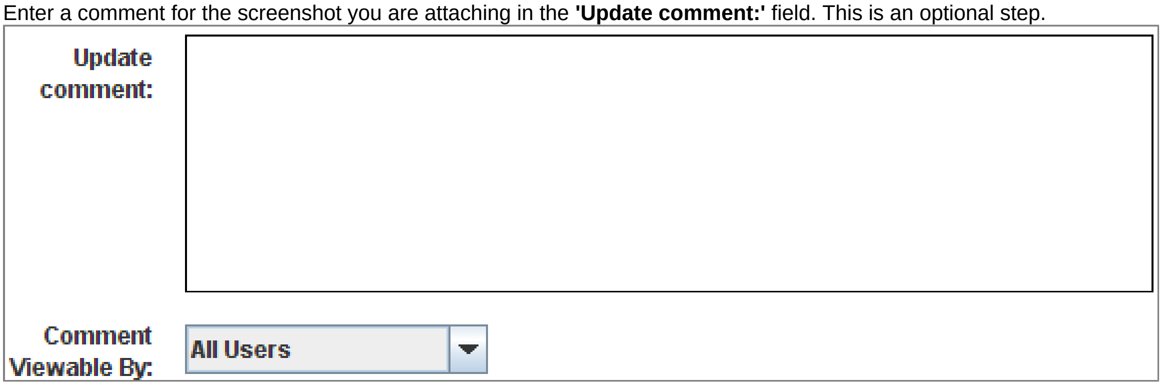


Please note that clicking the **'Attach'** button before an image has been pasted will not attach anything to the JIRA issue.

5. Enter a file name for the screenshot you are attaching in the **'File name:'** field. The file name will be initially defaulted to '`screenshot-1`'.

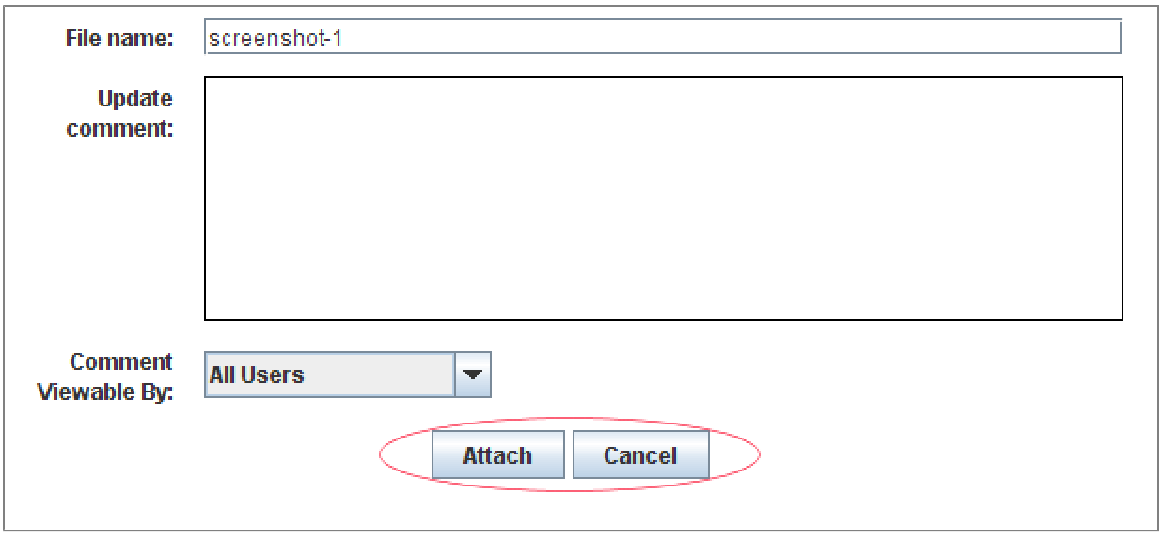
A valid file name cannot contain any of these characters: `'\', '/','\"', '%', ':', '$', '?', '*'`.
If an invalid file name is entered, an error message will display when the **'Attach'** button is clicked and the screenshot will not be attached to the JIRA issue.

6. Enter a comment for the screenshot you are attaching in the **'Update comment:'** field. This is an optional step.



If you have entered a comment, then you can also set the security level for the comment by selecting the appropriate value from the **'Comment Viewable By:'** dropdown. The security level for the comment will initially be defaulted to '`All Users`'.
The comment entered will be added to the JIRA issue, with the selected security level, when the screenshot is attached.

7. Click the **'Attach'** button to attach the captured image to your JIRA issue.
The window will close and you will be returned to your original JIRA issue.
At any time you may click the **'Cancel'** button to close the window without attaching anything to the JIRA issue.



Capturing Screenshots

The method for capturing screenshots differs on each operating system, as described below:

Capturing a screenshot on Windows

- New screenshot capture — To capture a screenshot into the system clipboard, use either of the following keyboard combinations:
  - press **ALT-PRINTSCREEN** to capture your currently selected window; or
  - press **CTRL-ALT-PRINTSCREEN** to capture the whole desktop
- Existing image — Open your existing image in your favourite imaging application and select the copy option from the appropriate menu to capture the image into the system clipboard.

Capturing a screenshot on Mac OSX

- New screenshot capture — To capture a screenshot into the system clipboard, use either of the following keyboard combinations:
  - press **CTRL-APPLE-SHIFT-4** to capture your currently selected window; or
  - press **CTRL-APPLE-SHIFT-3** to capture the whole desktop
- Existing image — Open your existing image in your favourite imaging application and select the copy option from the appropriate menu to capture the image into the system clipboard.

Cloning an Issue

'Cloning' (copying) an issue allows you to quickly create a duplicate of an issue within the same project. The clone issue is a replica of the original issue, containing the same information stored in the original issue — e.g. Summary, Affects Versions, Components, etc. The clone issue can also be linked to the original issue using a 'clone' link.

A clone issue is a separate entity from the original issue. Operations on the original issue have no effect on the clone issue and vice versa. The only connection is a link (if created) between the original and the clone issue.

A clone issue retains the following information:

- Summary — with optional prefix (specified in jira-application.properties)
- Description
- Assignee
- Environment
- Priority
- Issue Type
- Security
- Reporter (note that, if you do not have the **'Modify Reporter'** permission, the clone issue will be created with you as the Reporter)
- Components
- Affects Versions
- Fix For Versions
- Issue Links (optional)
- Attachments (optional)
- Project (note that, once the clone has been saved, you can move it to another project as described in Moving an Issue)

Details such as time tracking and comments are not cloned.

Creating a Clone Issue

To clone an issue,

1. Open the JIRA issue which you wish to clone.

2. From the **'More Actions'** menu, select **'Clone'**. The '**Clone Issue**' screen will appear.
   - You can edit the clone issue's Summary if you wish.
   - If the issue contains links to other issue(s), you can select whether or not to include the links in the new clone issue.
   - If the issue contains sub-tasks, you can select whether or not to create the sub-tasks in the new clone issue.
   - If the issue contains attachments, you can select whether or not to include the attachments in the new clone issue.
3. Click the '**Create**' button.

Clone Issue Linking

The clone issue can be automatically linked to the original issue when creating the clone issue, using a pre-existing link type.

JIRA queries the jira-application.properties file for the `jira.clone.linktype.name` setting.

- If this property is unset, JIRA will not create a link between the original and clone issues.
- If this property is set, JIRA will use the pre-existing link type with the specified name as the link type (the default link type is 'Cloners'). If a link type with this name does not exist, a link is not created between the original and clone issues.

If linking of clone issues is required, your JIRA administrator should create the link type with the name specified in the properties file before anyone starts creating clone issues.

Clone Issue Summary Prefix

The clone issue summary can be prefixed with a string, e.g. "Clone Issue - ". This string is specified by your JIRA administrator in jira-application.properties with the `jira.clone.prefix` property and is prefixed to the issue summary. The default prefix is 'CLONE - '.

Cloning and Sub-Tasks

Sub-Tasks can be cloned in the same manner as other issue types.

If the original issue has associated sub-tasks, that issue's sub-tasks will also be cloned. The summary of a cloned sub-task will also include the prefix specified in the properties file.

Commenting on an Issue

Adding comments to an issue is a useful way to record additional detail about an issue, and collaborate with team members. Comments are shown in the '**Comments**' tab of the '**Activity**' section when you view an issue.

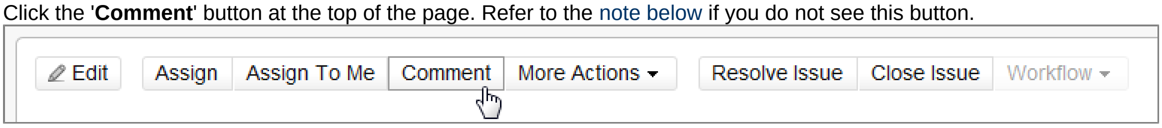
When adding a comment, you can set the comment to be **Viewable by** members of a particular project role or user group only; or you can allow all users to view it. For users to view a comment, they must have the 'Browse Project' permission to view the issue, and for each comment they must be a member of the **Viewable by** users (see Adding a Comment below).

On this page:

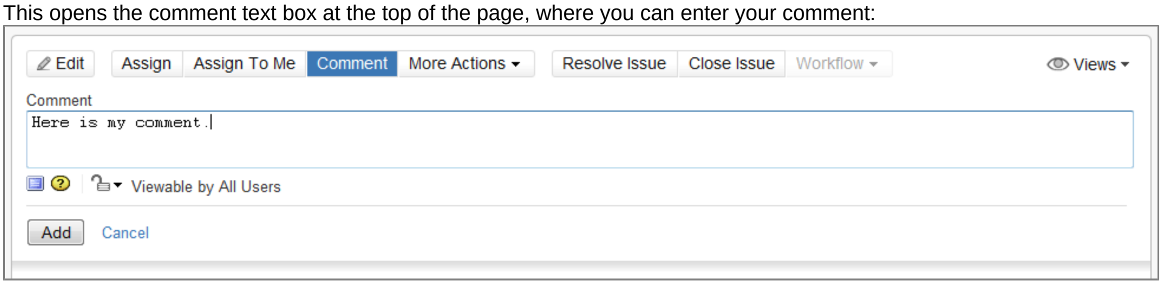
- Adding a comment
- Collapsing/Expanding a comment
- Editing a comment
- Deleting a comment
- Linking to a comment

Adding a comment

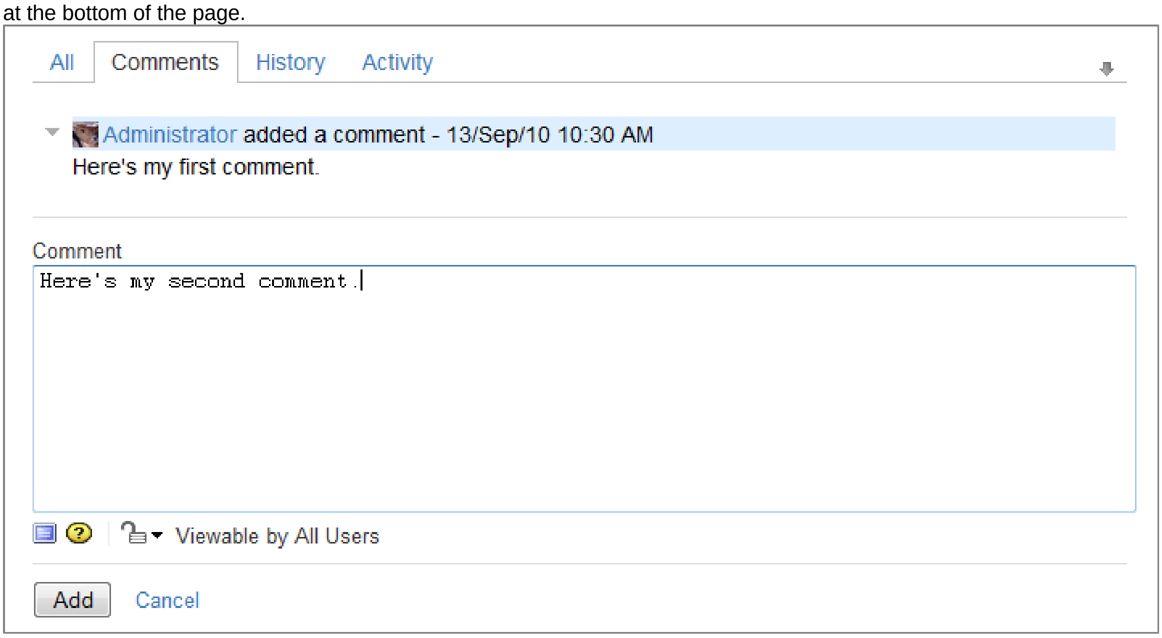
1. Open the issue on which to add your comment.
2. Click the '**Comment**' button at the top of the page. Refer to the note below if you do not see this button.

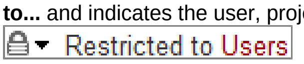


This opens the comment text box at the top of the page, where you can enter your comment:



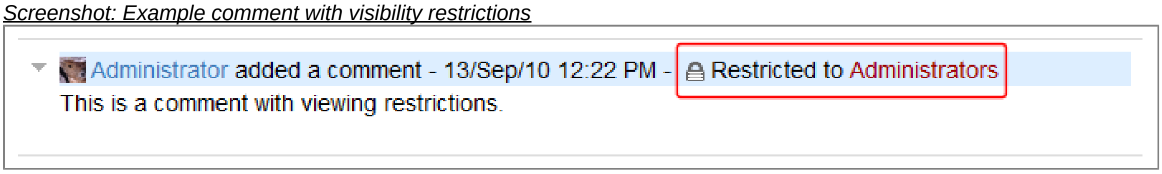
Alternatively, if you are at the end of an issue, click the '**Comment**' button at the end of the page to open the comment text box at the bottom of the page.



3. Type your comment, using as many lines as you require.
   You can use wiki markup if you wish.
4. If you wish to apply viewing restrictions to this comment, click the open padlock icon next to **Viewable by...** and select which users will be able to view this comment.
   The **Viewable by...** list also includes all project roles and groups to which you belong. (Note that **All Users** means everybody who uses JIRA, while **Users** means everybody who is a member of the **Users** project role in this project.) Depending on how your JIRA administrator has configured 'Comment visibility', the **Viewable by...** list may include groups as well as project roles.
   Once viewing restrictions have been applied to a comment, the padlock icon closes and **Viewable by...** is replaced by **Restricted to...** and indicates the user, project role or group, who can view this comment, for example:
   

5. Click the '**Add**' button.

Screenshot: Example comment with visibility restrictions



For each comment on an issue, a small version of the comment author's user avatar appears to the left of their full name.

To add comments to an issue, you must have both of the following permissions:

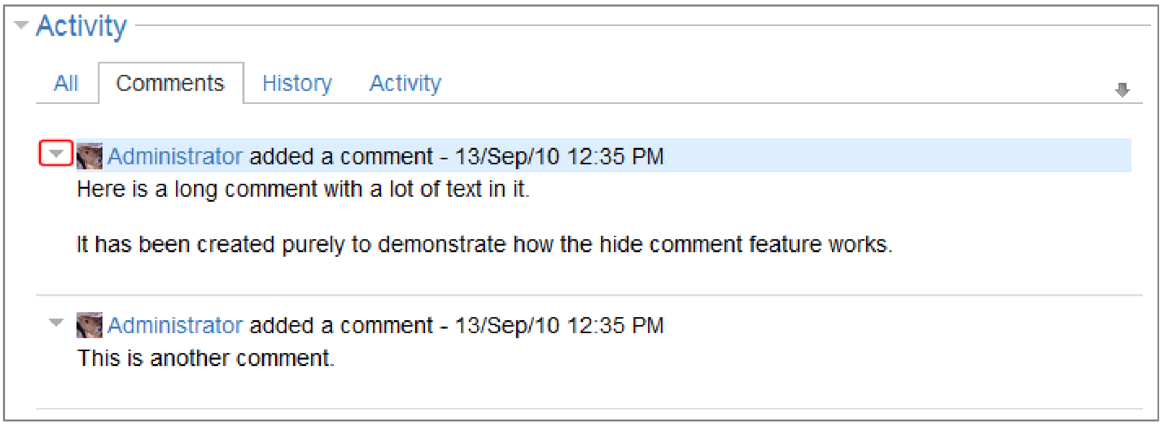
- 'Browse Project' permission — to view the issue to be commented on
- 'Add Comments' permission — to add a comment to the issue

Collapsing/Expanding a comment

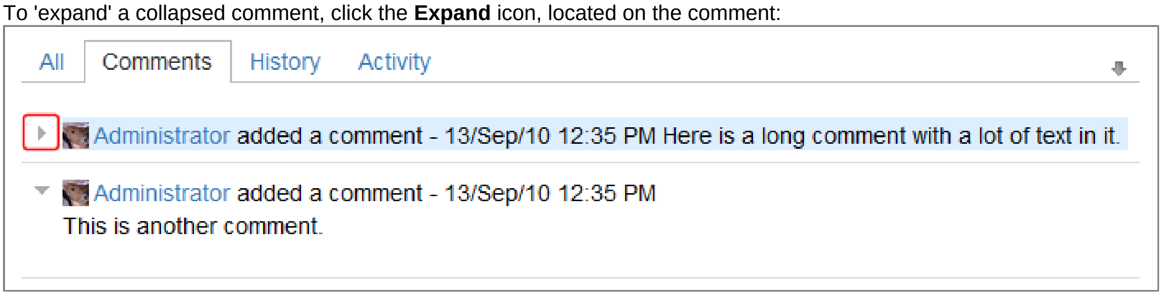
Note that 'Collapsing' or 'Expanding' a comment does not relate in any way to 'visibility restrictions'.

To collapse or expand a comment:

1. Locate the comment in the **Activity** section at the bottom of the issue.
2. Browse to the comment you wish to collapse/expand.
3. To 'collapse' a comment, click the **Collapse** icon, located on the comment:



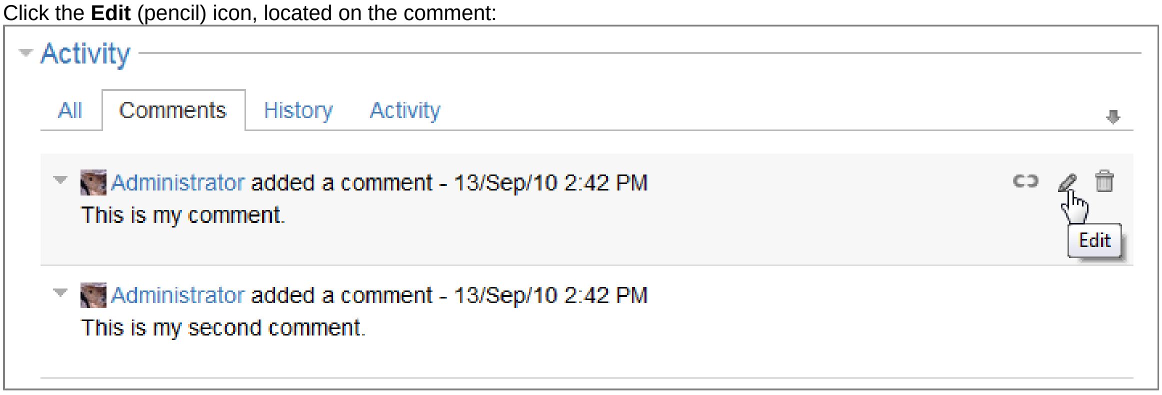
4. To 'expand' a collapsed comment, click the **Expand** icon, located on the comment:



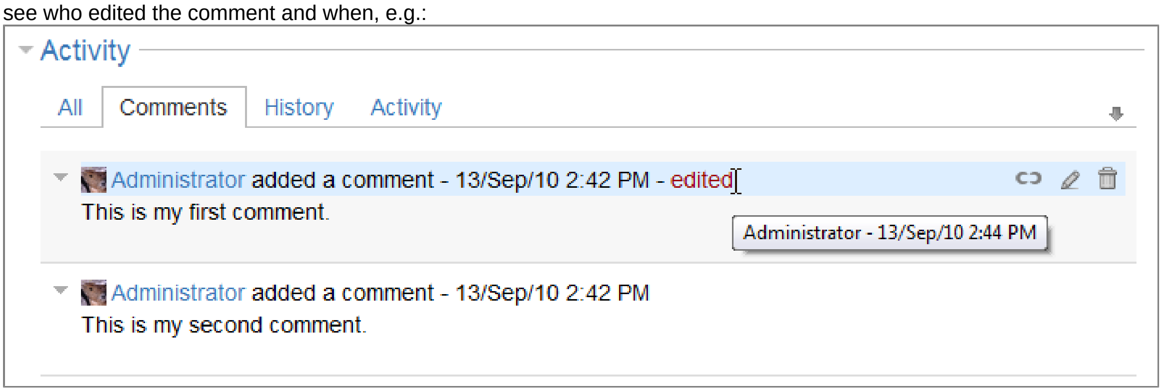
Editing a comment

To edit a comment,

1. Locate the comment in the **Activity** section at the bottom of the issue.
2. Browse to the comment you wish to edit.
3. Click the **Edit** (pencil) icon, located on the comment:

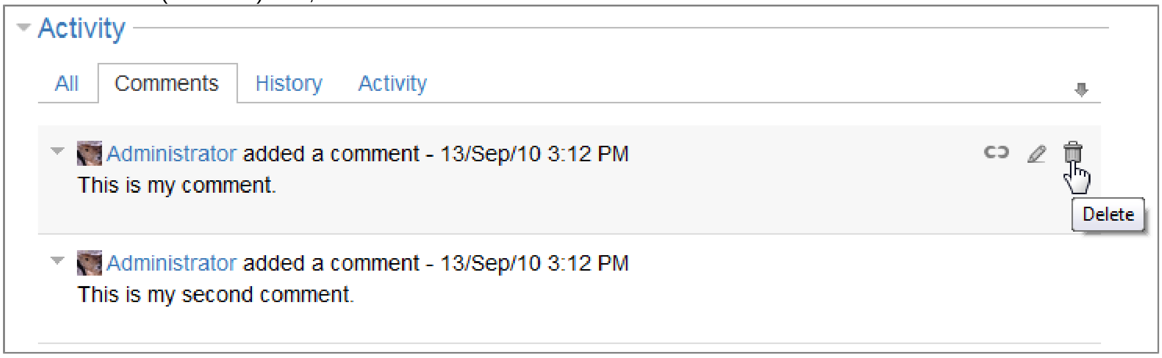


4. Edit the comment's text and/or **Viewable by** list as required.
5. Click the **'Save'** button.
6. The word 'edited' will be displayed to indicate that the comment has been edited. You can hover your mouse over the word 'edited' to see who edited the comment and when, e.g.:



You can edit your own comments if you have been granted the 'Edit Own Comments' permission. You can edit other people's comments if you have been granted the 'Edit All Comments' permission.

Deleting a comment

1. Browse to the comment you wish to delete.
2. Click the **Delete** (trash-can) icon, located on the comment:


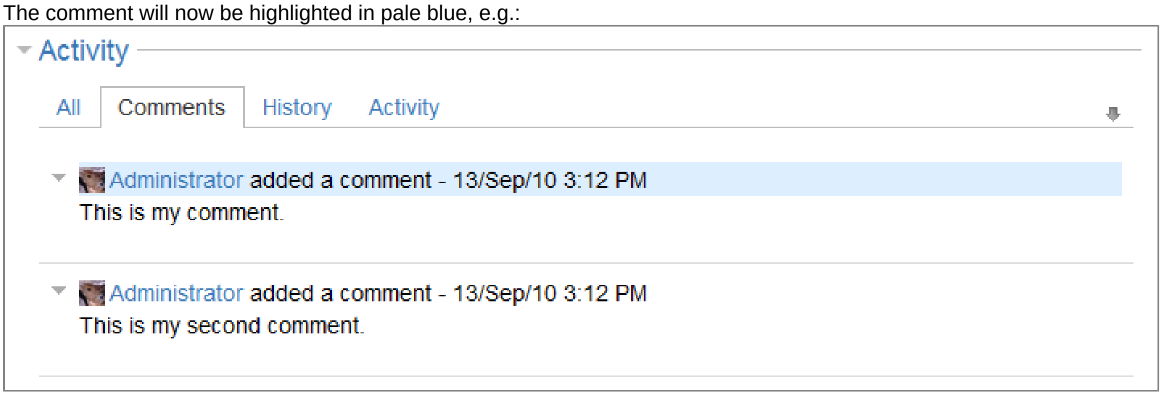
3. Confirm the deletion by clicking the **Delete** button.

You can delete your own comments if you have been granted the 'Delete Own Comments' permission. You can delete other people's comments if you have been granted the 'Delete All Comments' permission.

Linking to a comment

Sometimes you may want to link to a specific comment within a JIRA issue. To do this,

1. Browse to the comment you wish to link to.
2. Click the **Permlink** (link) icon, located on the comment:


3. The comment will now be highlighted in pale blue, e.g.:


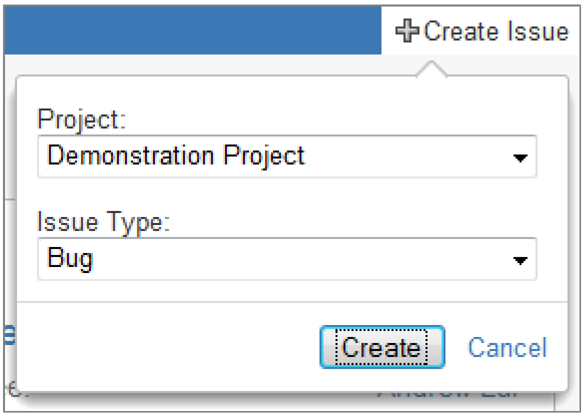
If your JIRA issue contains an extensive list of comments, the issue page will automatically be scrolled down so that the linked comment is visible.
4. The URL in your browser's address bar will now look something like this:
`http://jira.atlassian.com/browse/TST-123?focusedCommentId=94796#action_94796`
5. Copy the URL from your browser's address bar and paste it into wherever you want to link from (e.g. an email).

Creating an Issue

To create a JIRA issue, you will need to have the 'Create Issue' permission in the relevant project. If you don't have this permission, please contact your JIRA administrator.

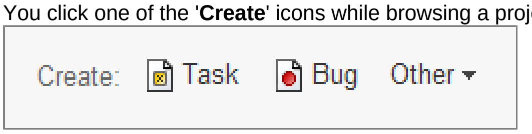
To create a new JIRA issue:

1. Click the '**Create Issue**' link at the top of the screen.
The '**Choose the project and issue type**' popup will be displayed.

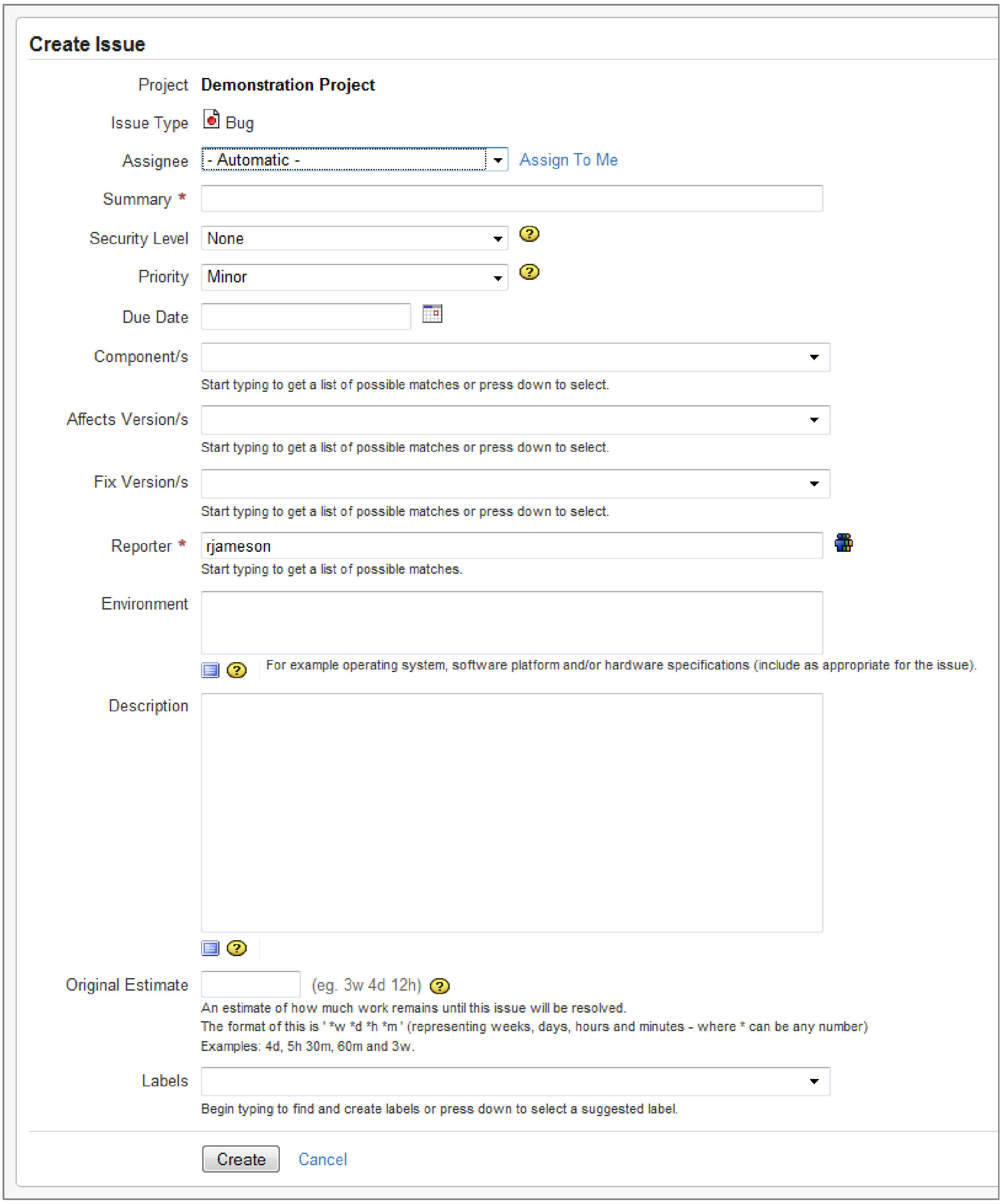


Note that this popup will not be displayed if:

- There is only one project and only one issue type for that project in your JIRA site.
- You click '**Create Issue**' while browsing a project, and there is only one issue type for that project.
- You click one of the '**Create**' icons while browsing a project, e.g.:



2. Select the relevant project and issue type, then click the '**Create**' button.
   The '**Enter the details of the issue**' screen will be displayed.



Note that this screen may look different if your JIRA administrator has customised it.

3. Type a summary of the issue and complete any other required fields, which are italicised and highlighted by an asterisk.
4. Click the '**Create**' button at the bottom of the page. The new issue will be created and you will see the 'View Issue' screen, showing the issue details that you have provided. You may also receive an email containing details and a link to your new issue.

To see a list of all issues that you have created, which have not yet been resolved, go to your user profile and click the '**Reported & Open**' filter.

> With appropriate configuration by your JIRA administrator, it is also possible to create issues via email.

Creating a Sub-Task

Sub-task issues are useful for splitting up a parent issue into a number of tasks which can be assigned and tracked separately. Splitting issues into smaller tasks often provides a better picture of the progress on the issue, and allows each person involved in resolving the issue to better understand what part of the process they are responsible for.

All the sub-tasks related to a parent issue are summarised on the parent issue's main screen (see 'Working with Sub-Tasks' below). Sub-tasks always belong to the same project as their parent issue.

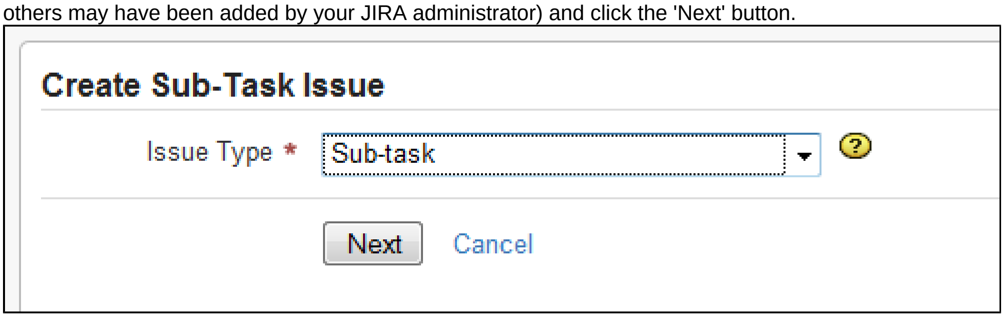
Sub-tasks have all the same fields as standard issues, e.g. Summary, Description, Reporter, Assignee, Status. Note that sub-tasks have a different set of issue types from the standard issue types.

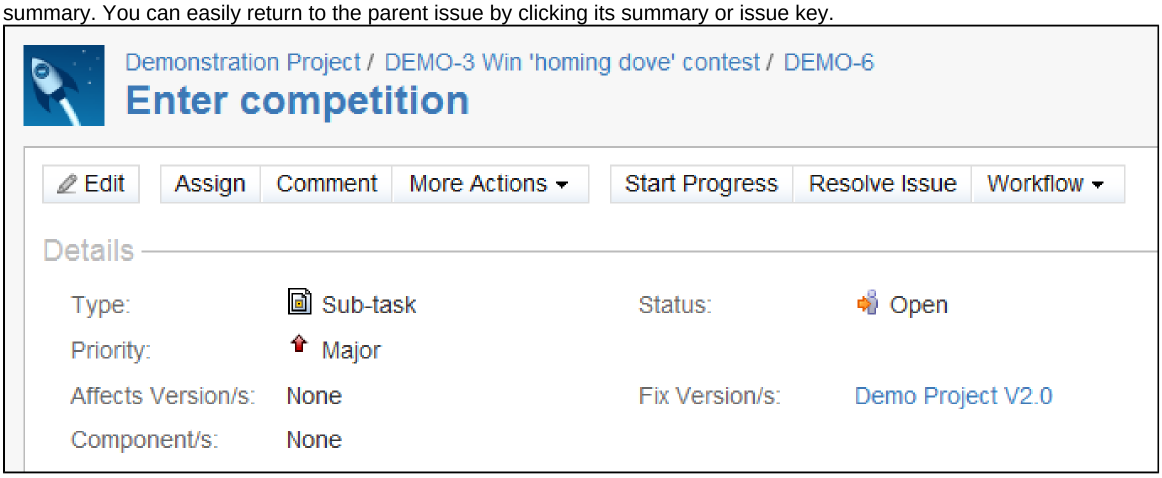
Sub-tasks cannot have sub-tasks of their own. However, if you need to break up a sub-task into smaller sub-tasks, you could achieve this by first converting the sub-task to a standard issue (see below). You would then be able to create sub-tasks for it.

On this page:

- Creating a sub-task
- Working with sub-tasks
- Searching for sub-tasks
  - Adding the 'Sub-Tasks' column to your Issue Navigator
- Converting a standard issue to a sub-task
- Converting a sub-task to a standard issue

Creating a sub-task

1. Navigate to the issue which you would like to be the parent issue of the sub-task you are about to create.
2. Select '**Create Sub-Task**' from the '**More Actions**' drop-down menu.
3. The '**Choose the project and issue type**' screen will be displayed. Select the sub-task issue type (the default is 'Sub Task', but others may have been added by your JIRA administrator) and click the 'Next' button.


4. The '**Enter the details of the issue**' screen will be displayed, similar to creating a standard issue. Type a summary for the sub-task and complete any other required fields, which are italicised and highlighted by an asterix.
Note that there is no option to set security on a sub-task, as sub-tasks inherit their parent issue's security levels (if any have been set).
5. Click the '**Create**' button at the bottom of the page. The sub-task will be created and you will see the 'View Issue' screen, showing the sub-task's details that you have provided. The parent issue's summary and issue key are displayed above the sub-task's summary. You can easily return to the parent issue by clicking its summary or issue key.


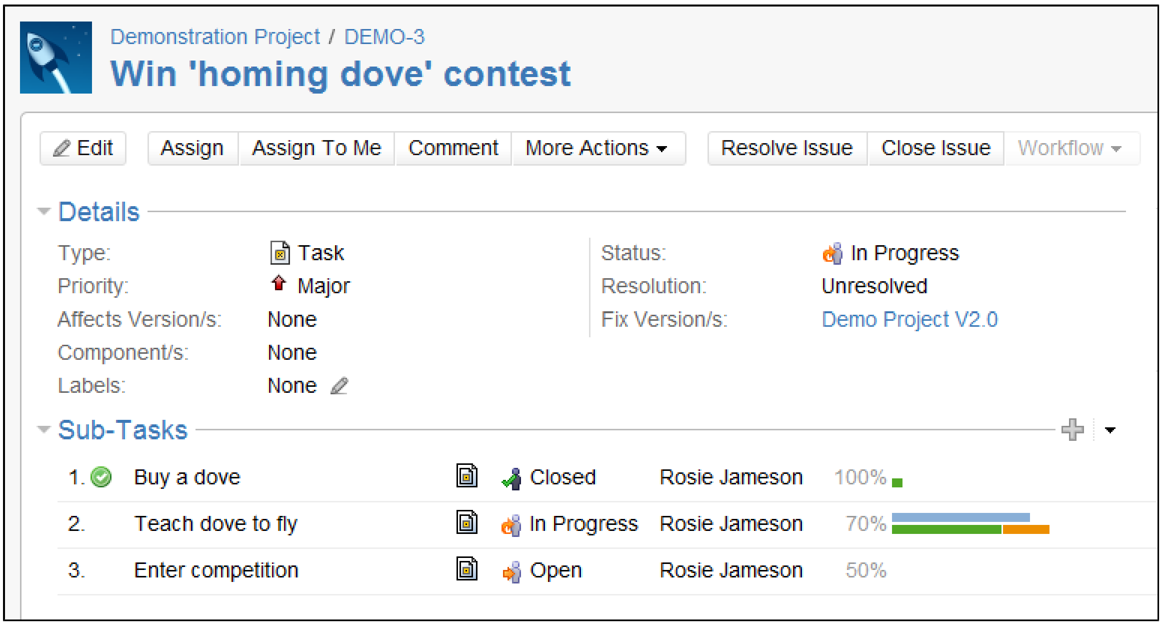
In the above screenshot, the new sub-task is **DEMO-6 (Enter competition)** and its parent issue is **DOVE-3 (Win 'homing dove' contest).** Both belong to the **Dove** project.

To create sub-tasks, you will need to have the 'Create Issue' permission in the parent issue's project. Also note that sub-tasks can only be created if your JIRA administrator has enabled sub-tasks and added the sub-task issue type to the project's issue type scheme.

Working with sub-tasks

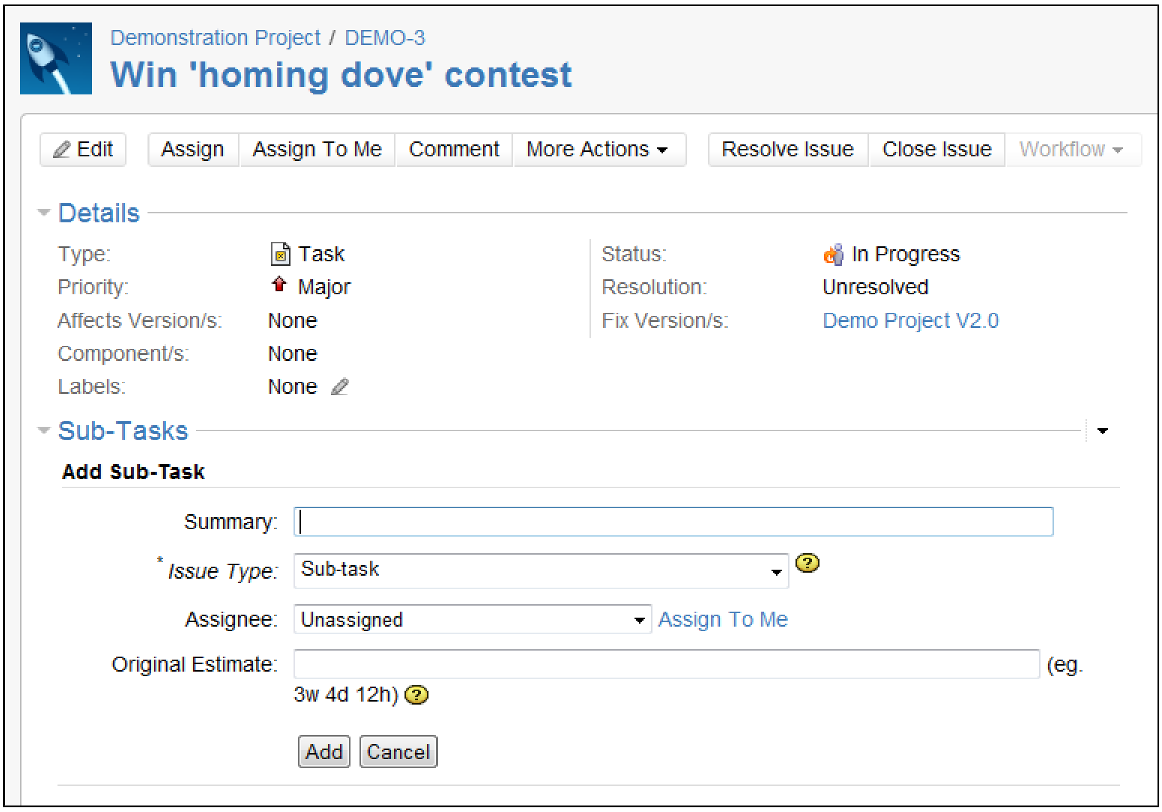
If an issue has sub-tasks, then the issue screen will show a list of all the issue's sub-tasks:

Screenshot: An Issue's Sub-Tasks



- The sub-task list has two *views:* 'All' and 'Open'. The *All* view lists all sub-tasks, regardless of status, while the *Open* view only shows sub-tasks that have not been resolved (i.e. do not have a Resolution). You can switch views by clicking the 'All' and 'Open' links.
- The coloured bars show the time-tracking data for the issue and its sub-tasks.
- You can reorder sub-tasks, for example, organise the list in the order of intended execution or priority. Hover your mouse over the sub-task you wish to move, and use the 'up' and 'down' arrows that will appear.
- You can perform *actions* on the sub-tasks, e.g. 'Assign Issue', 'Resolve Issue', 'Close Issue', 'Reopen Issue'. Hover your mouse over the sub-task you wish to action, and click the 'Actions' drop-down menu link that appears.
- Once an issue has one or more sub-tasks, you can quickly create additional sub-tasks by clicking the '+' icon, which will display the ' **Add Sub-Task**' form show below. Type a description in the 'Summary' field and click the '**Add**' button. (The other sub-task fields are optional, although '**Issue Type**' will default to 'Sub-task' and '**Assignee**' will default to 'Unassigned'.)

Screenshot: 'Add Sub-Task' form



The 'Add Sub-Task' form may look different if your JIRA administrator has customised it — see Configuring Sub-tasks.

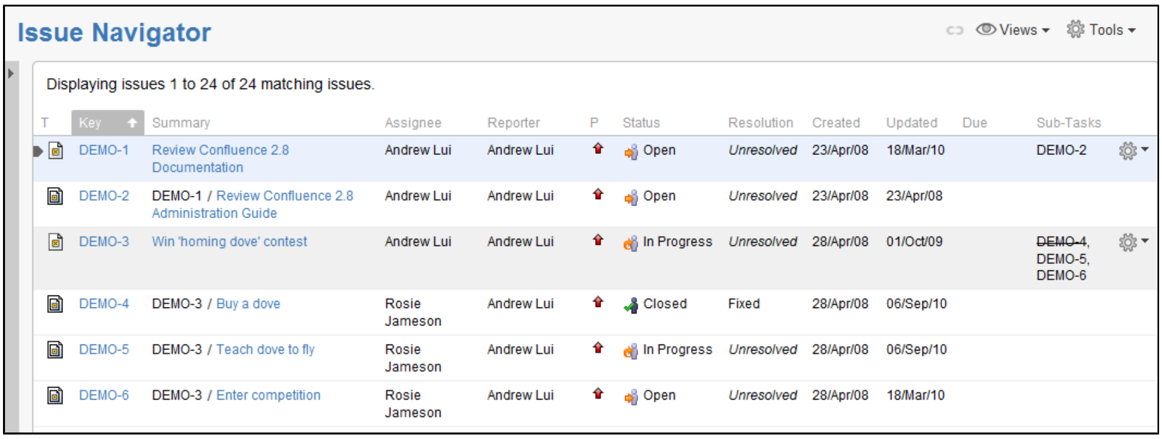
Searching for sub-tasks

When sub-tasks are enabled, two extra entries will appear in the 'Issue Type' drop-down list in the Issue Navigator's search form. These entries are: 'Standard Issue Types' and 'Sub-Task Issue Types'.

- To search standard issues only, click the *Standard Issue Types* entry.
- To search sub-task issues only, click *Sub-Task Issue Types* entry.
- To search for one specific type of issue or sub-issue, select just one Issue Type or one Sub-Task Issue Type.

If no entries are selected from the 'Issue Type' drop-down then the search will return all the standard issues *and* sub-task issues that meet the rest of the search criteria.

The search results indicate sub-task issues by displaying the parent issue's issue key above the sub-task's summary, as shown below:



Adding the 'Sub-Tasks' column to your Issue Navigator

To add the '**Sub-Tasks**' column to your Issue Navigator as shown in the above screenshot, please see Customising your Issue Navigator columns.

Converting a standard issue to a sub-task

1. Navigate to the issue which you would like convert to a sub-task.
2. Select '**Convert to sub-task**' from the '**More Actions**' drop-down menu
3. The '**Step 1. Select Parent Issue and Sub-Task Type**' screen will be displayed. Type or select the appropriate parent issue type, select the new issue type (i.e. a sub-task issue type) and click the 'Next' button.
4. If the issue's current status is not an allowed status for the new issue type, the '**Step 2. Select New Status**' screen will be displayed. Select a new status and click the '**Next**' button.
5. The '**Step 3. Update Fields**' screen will be displayed. If the new issue type requires any additional fields, you will be prompted to enter them (otherwise you will see the message 'All fields will be updated automatically'). Click the '**Next**' button.
6. The '**Step 4. Confirmation**' screen will be displayed. If you are satisfied with the new details for the issue, click the '**Finish**' button.
7. The issue will be displayed. You will see that it is now a sub-task, that is, its parent's issue number is now displayed at the top of the screen (see 'Creating a sub-task' above).

Note that you will not be able to convert an issue to a sub-task if the issue has sub-tasks of its own. You will first need to convert the issue's sub-tasks to standalone issues (see below); you can then convert them to sub-tasks of another issue if you wish. Sub-tasks cannot be moved directly from one issue to another — you will need to convert them to standard issues, then to sub-tasks of their new parent issue.

Converting a sub-task to a standard issue

1. Navigate to the sub-task issue which you would like convert to a standard issue.
2. Select '**Convert to issue**' from the '**More Actions**' drop-down menu.
3. The '**Step 1. Select Issue Type**' screen will be displayed. Select a new issue type (i.e. a standard issue type) and click the '**Next**' button.
4. If the sub-task's current status is not an allowed status for the new issue type, the '**Step 2. Select New Status**' screen will be displayed. Select a new status and click the '**Next**' button.
5. The '**Step 3. Update Fields**' screen will be displayed. If the new issue type requires any additional fields, you will be prompted to enter them (otherwise you will see the message 'All fields will be updated automatically'). Click the '**Next**' button.
6. The '**Step 4. Confirmation**' screen will be displayed. If you are satisfied with the new details for the issue, click the '**Finish**' button.
7. The issue will be displayed. You will see that it is no longer a sub-task, that is, there is no longer a parent issue number displayed at the top of the screen.

Editing Rich-Text Fields

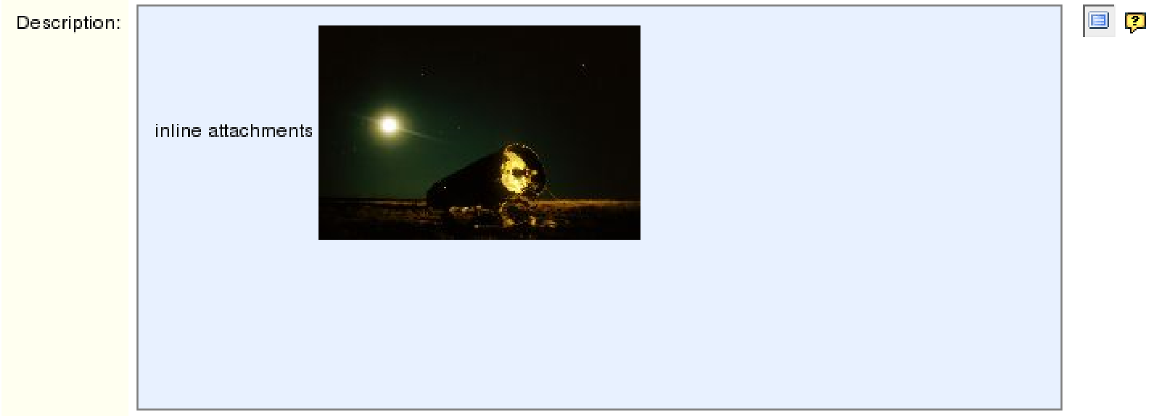
When you create, edit or comment on a JIRA issue, some fields may display two small icons at the right of the text area: a blue screen (the **'Preview'** icon) and a yellow question-mark (the **'Help'** icon). The presence of these icons indicates that this field supports JIRA's Text Formatting Notation, allowing you to use rich-text features such as:

- Italic, bold, underlined text.
- Multiple levels of headings.
- Bullets, numbered lists, tables and quotations.
- Images.

- Macros (see below).

For example, to include an image in the field, you would first attach the image to the issue, then type the following into the field:

To preview what the field will look like after you save it, click the **'Preview'** icon:



Click the **'Help'** icon to see a popup window containing the Text Formatting Notation Help.

Using Macros

> The JIRA Text Formatting Notation and macros will only be available if your JIRA administrator has configured the relevant renderers.

JIRA ships with the following macros:

Macro	Description	Enabled by default

Anchor Macro	Create an anchor that allows people to link to a specific point in a page. Usage:
	`{anchor:bookmark1}`
	`... text here ...`
	`[#bookmark1]`
		yes

<table>
<tr>
<td>Code Macro</td>
<td>

Format blocks of source-code or XML. The default language is Java but you can specify JavaScript, ActionScript, XML, HTML and SQL too. Usage:

```
--- Java example ---
{code:title=Bar.java|borderStyle=solid}
// Some comments here
public String getFoo()
{
    return foo;
}
{code}
*--- XML example ---*
{code:xml}
<test>
  <another tag="attribute"/>
</test>
{code}
```

</td>
<td>yes</td>
</tr>
<tr>
<td>Quote Macro</td>
<td>

Generate blockquotes that may contain multiple paragraphs or complex markup. Usage:

```
{quote}
This is text from another source
{quote}
```

</td>
<td>yes</td>
</tr>
<tr>
<td>No Format Macro</td>
<td>

Create blocks of text where other wiki formatting is not applied. Usage:

```
{noformat}
This is text  \#&@!@(*!&*@()#*@\ \\
{macros} _wont_work_here
{noformat}
```

</td>
<td>yes</td>
</tr>
<tr>
<td>Panel Macro</td>
<td>

Draw a panel with the following optional parameters:

- title: Title of the panel
- borderStyle: The style of the border this panel uses (solid, dashed and other valid CSS border styles)
- borderColor: The color of the border this panel uses
- borderWidth: The width of the border this panel uses
- bgColor: The background color of this panel
- titleBGColor: The background color of the title section of this panel

```
{panel}Some text{panel}
{panel:title=My Title}Some text with a title{panel}
{panel:title=My Title| borderStyle=dashed| borderColor=#ccc|
titleBGColor=#F7D6C1| bgColor=#FFFFCE}
a block of text surrounded with a *panel*
yet _another_ line
{panel}
```

</td>
<td>true</td>
</tr>
<tr>
<td>Colour Macro</td>
<td>

Change the colour of the contained text. Usage:

```
{color:red}
look ma, red text!
{color}
```

You can use any of the sixteen standard HTML colours ('aqua','black','blue','fuschia','green','gray','lime', 'maroon','navy','olive','purple','red','silver','teal','white','yellow'), or any hexadecimal colour code (e.g. '#336699').

</td>
<td>yes</td>
</tr>
<tr>
<td>Lorem Ipsum Macro</td>
<td>

Insert paragraphs of "lorem ipsum" space-filler text. Usage:

```
{loremipsum}
```

</td>
<td>yes</td>
</tr>
</table>

<table>
<tr>
<td>HTML Macro</td>
<td>Use HTML code within a Jira Issue. Usage:
<pre><code>{html}
<p>You'll find a lot more in <A href="chapter2.html">chapter two.
See also this <a href="../images/forest.gif">map of the enchanted
forest.</A></p>
{html}</code></pre></td>
<td>no</td>
</tr>
</table>

Labelling an Issue

On this page:

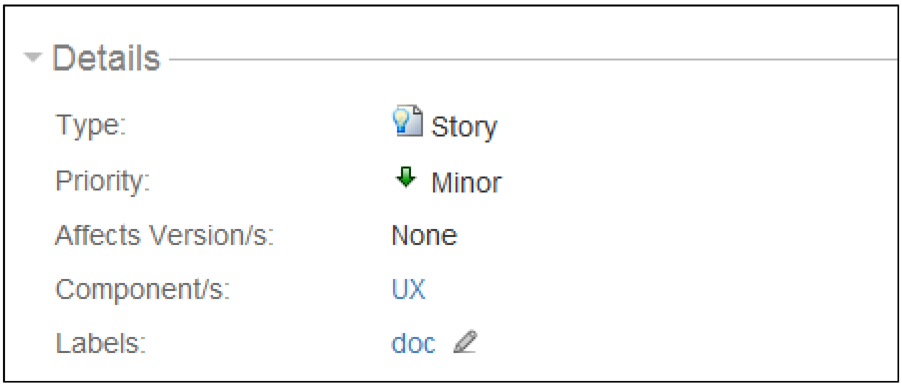
- About labels
- Adding a label to an issue
- Removing a label from an issue
- See also

About labels

Labelling allows you to categorise an issue(s) in a more informal way than assigning it to a version or component.

When viewing an issue, the issue's labels appear in the 'Details' section:

Screenshot: the 'Details' section within an issue



If your JIRA administrator has added any custom fields of type 'Label', they will be shown below the '**Labels**' field. For example, if you are using GreenHopper, a field called '**Epic**' will be shown (see the GreenHopper documentation on Working with Epics.

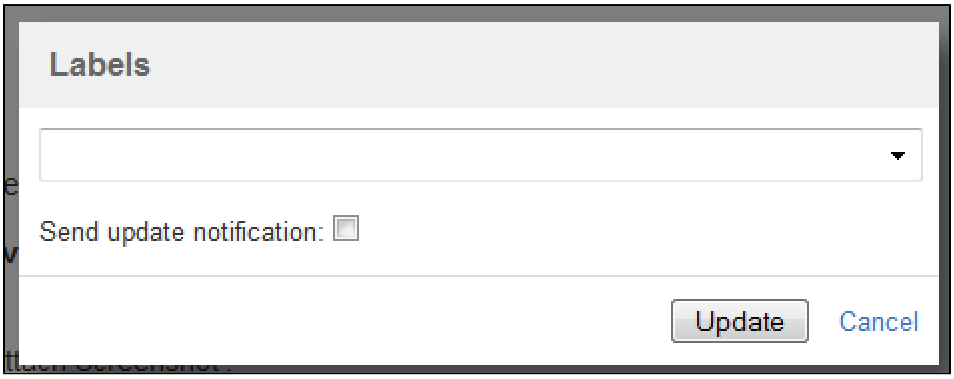
You can click a label (e.g. '**doc**' in the above screenshot) to jump to the Issue Navigator and see a list of all issues which have that label.

You can also:

- browse for labelled issues in a particular project (see Browsing a Project's Labels).
- search for issues that have been given a particular label (use the 'Labels' field in a Simple Search or an Advanced Search), and create saved filters.
- add the Labels Gadget to your dashboard, and/or use the 'Labels' field with any field-focused gadget (e.g. Heat Map, Issue Statistics , Filter Results, 2D Filter Statistics).

Adding a label to an issue

1. View the issue which you want to label.
2. Click the 'edit' icon which appears to the right of the word '**Labels**':
3. In the pop-up dialog box that appears, either type your label and press the <**Enter**> key, or click the down-arrow icon to select from a list of suggestions.



You can type multiple labels, separated by spaces.

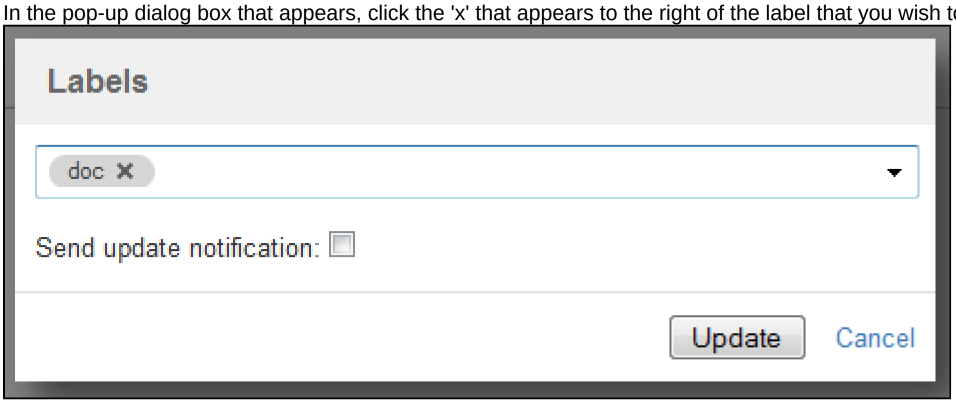
4. Normally when you edit and save an issue, certain people are notified via email.
    - If you want the normal notification email to be sent, select the '**Send update notification**' check-box.
    - If you don't want the normal notification email to be sent, leave the '**Send update notification**' check-box blank.

      Note that the issue's Change History will always be updated when a label is added.
5. Click the '**Update**' button. Your new label will be saved.

You can also add a label when you create or edit an issue.

Removing a label from an issue

1. View the issue which you want to label.
2. Click the 'edit' icon which appears to the right of the word '**Labels**':
3. In the pop-up dialog box that appears, click the 'x' that appears to the right of the label that you wish to remove.



4. Normally when you edit and save an issue, certain people are notified via email.
    - If you want the normal notification email to be sent, select the '**Send update notification**' check-box.
    - If you don't want the normal notification email to be sent, leave the '**Send update notification**' check-box blank.

      Note that the issue's Change History will always be updated when a label is removed.
5. Click the '**Update**' button. Your change will be saved.

You can also remove a label when you edit an issue.

See also

- Browsing a Project's Labels
- Adding the Labels Gadget

Linking Issues

On this page:

- About issue linking
- Creating a link
- Deleting a link
- Searching for linked issues

About issue linking

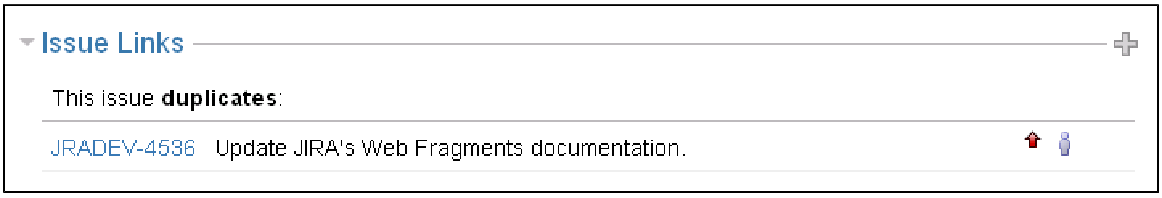
Issue linking allows you to create an association between two issues. For example:

- An issue may *relate to* another.
- An issue may *duplicate* (be a superset of) another.
- An issue may *block* another.

(Your JIRA administrator can customise the types of links that you can create.)

Within an issue, links to other issues look like this:

Screenshot: the 'Issue Links' section within an issue



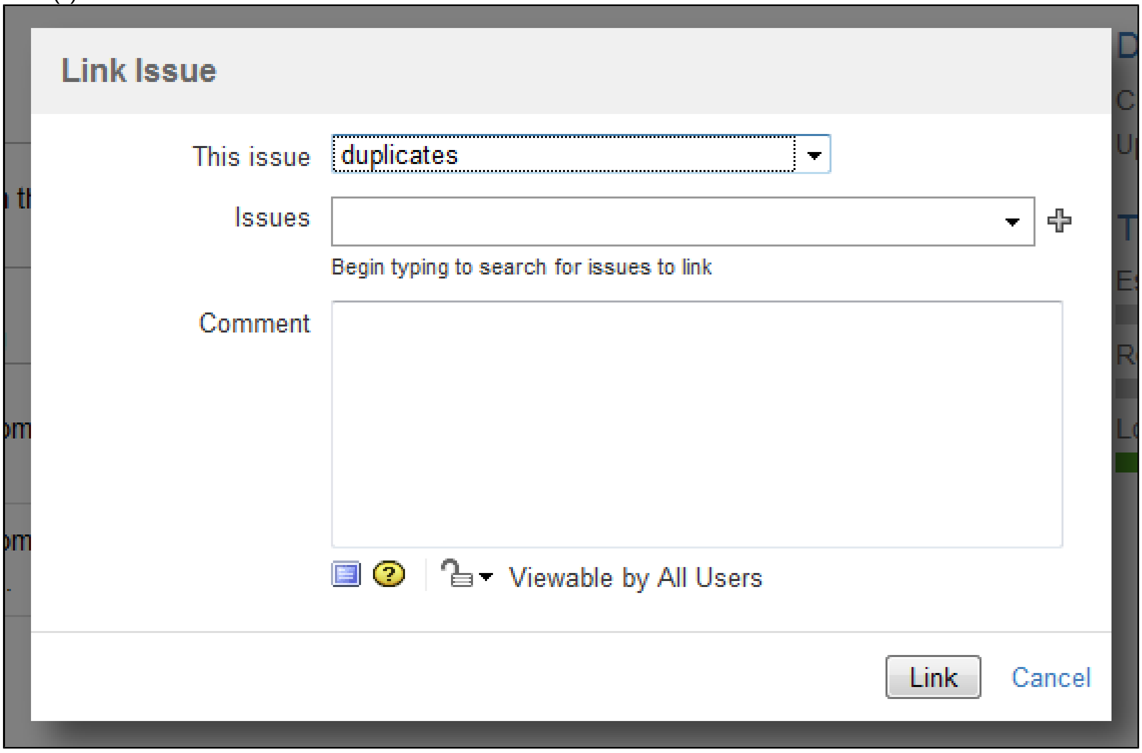
Note that resolved issues will be shown in strike-through font, e.g. ~~DEMO-1~~.

To create links between issues, you will need to have the Link Issues permission in the project(s) to which the issues belong.

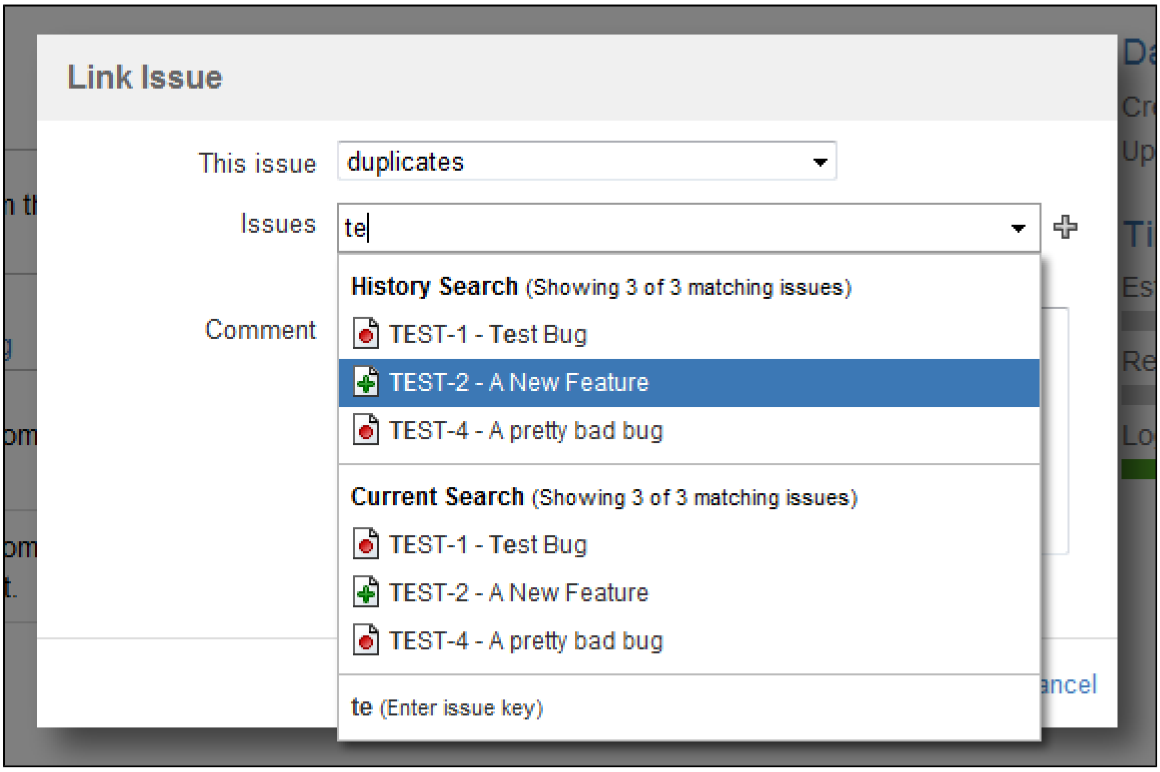
Creating a link

To create a link between issues:

1. View the issue from which you want to create a link.
2. Select '**Link**' from the '**More Actions**' menu. The '**Link Issue**' form will be displayed. Select the type of link to be created, and the issue(s) to be linked to.

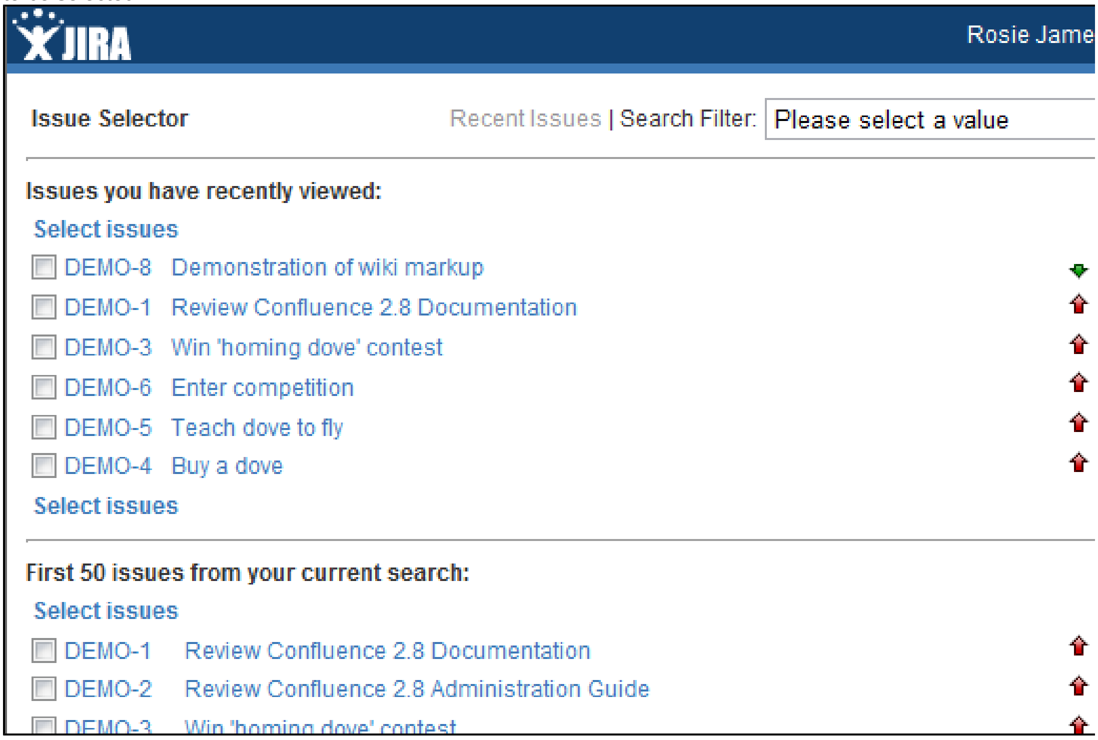


3. You can link to single or multiple issues. There are two ways to specify the issue(s) in the **Issues** field:
   - Type the full issue key (e.g. **ABC-123**) — or a comma-separated list of issue keys, if linking multiple issues.
     NOTE: If you have previously browsed an issue, you can find the issue number by typing the first few letters of the issue key (or part of the Summary), which will display a drop-down list:



or:

- Click the '**Select Issue**' (plus) icon to use the '**Issue Selector**' popup, which allows you to select either from issues recently viewed, or from issues returned from your chosen saved search filter (click the 'Please select a value' drop-down to choose a saved search filter).
    - To select a single issue, click the issue key.
    - To select multiple issues, click the '**Select multiple issues**' link. Checkboxes will appear, enabling multiple issues to be selected:



Select the issues, then click the '**Select issues**' link to close the popup and return to the 'Link Issue' form.

4. Click the '**Link**' button.

Deleting a link

To delete a link:

1. Go to an issue that contains links, and locate the '**Issue Links**' section (see screenshot at top of page).
2. Hover your mouse over the link you wish to delete, and click the '**Delete**' (trashcan) icon that appears.

Searching for linked issues

You can search for issues that are linked to a particular issue. For details, please see the documentation on Advanced Searching.

Logging Work on an Issue

On this page:

- About time-tracking
- Specifying time estimates
- Logging work on an issue
    - Logging work when viewing an issue
    - Logging work while resolving or closing an issue
- Editing a work log entry
- Deleting a work log entry
- Customised JIRA installations
    - Logging work *and/or* specifying time estimates on the same JIRA screen
- See also

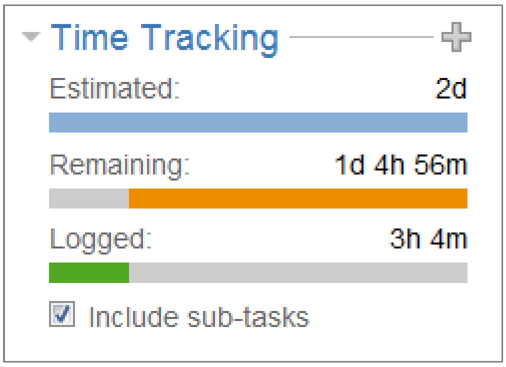
About time-tracking

> You can only specify time estimates and log work on an issue if your JIRA administrator has granted you the **Work On Issues** permission in the project to which the issue belongs. **Note:** Anyone with the **Browse Project** permission can view an issue's time tracking information.

If an issue (or its sub-tasks) has had work logged and/or an **Original Estimate** value specified, three coloured bars will be displayed representing the following amounts of time:

- **Original Estimate** (blue) — the amount of time originally anticipated to resolve the issue. (This is indicated as **Estimated** when viewing an issue.)
- **Remaining Estimate** (orange) — the remaining amount of time currently anticipated to resolve the issue. (This is indicated as **Remaining** when viewing an issue.)
- **Time Spent** (green) — the amount of time logged working on the issue so far. (This is indicated as **Logged** when viewing an issue.)

Screenshot: the Time Tracking section of an issue



If your issue has one or more sub-tasks, then:

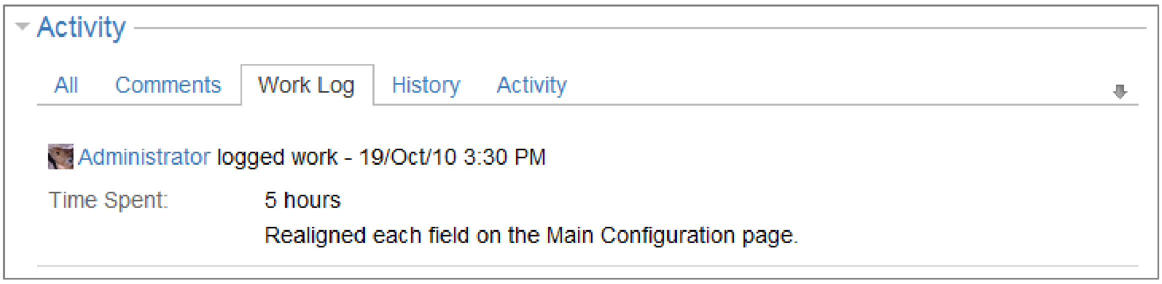
- To see aggregated times for your issue plus all of its sub-tasks, ensure that the **Include sub-tasks** check box is selected.
- To see times for just your issue only, ensure that the **Include sub-tasks** check box is cleared.

When you *log work* on an issue (see below), you:

1. Log the time you have spent, in weeks/days/hours/minutes (you can use fractions if you wish, e.g. `'5.5h'`).
   This time will be added to the issue's total **Time Spent**.
2. Enter a description of the work you have done.
3. Adjust the **Remaining Estimate** value (i.e. the *remaining amount of time* you think the issue will take to resolve).

The work logged on an issue is shown in the **Work Log** tab of the **Activity** section when you view an issue:

Screenshot: an issue's Work Log



Additionally, once work has been logged on an issue, various reports based on the time-tracking information become available.

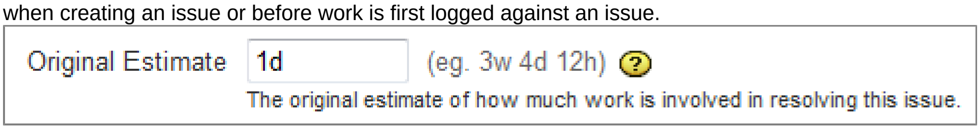
Specifying time estimates

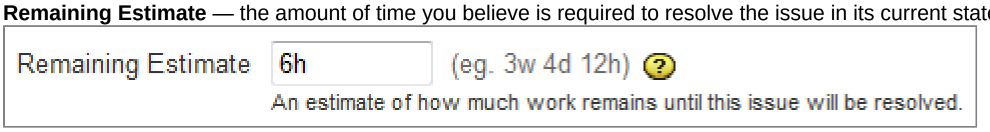
Prior to logging work on an issue, you may want to specify an **Original Estimate** for an issue (i.e. the *total amount of time* you think it will take to resolve the issue).

When work is first logged against the issue, the **Time Spent** is subtracted from the **Original Estimate** and the resulting value is automatically presented in the **Remaining Estimate**. When subsequent work is logged, any **Time Spent** is subtracted away from the **Remaining Estimate**.

Throughout the lifecycle of an issue, however, you can modify the **Original Estimate** and/or **Remaining Estimate** values manually if you wish. To do this:

1. Navigate to an existing issue, view it and click the '**Edit**' button at the top of the screen to edit that issue.
   OR
   Create a new issue by clicking '**Create Issue**' at the top right of the screen and complete the required field details.

   Edit the following Time Tracking fields:
   - **Original Estimate** — the amount of time you originally believe is required to resolve the issue. Typically, this is specified when creating an issue or before work is first logged against an issue.
     

   - **Remaining Estimate** — the amount of time you believe is required to resolve the issue in its current state.
     

   > You may see only one of these fields if JIRA's Time Tracking feature is running in Legacy Mode.
   >
   > If JIRA's Time Tracking feature is in Legacy Mode and work has not yet been logged on the issue, you will see the **Original Estimate** field. However, once work has been logged, you will only see the **Remaining Estimate** field.

2. Enter or modify your time tracking details in the **Original Estimate** and/or **Remaining Estimate** fields. Use 'w', 'd', 'h' and 'm' to specify weeks, days, hours or minutes. For example, to specify 'six hours', type '6h'.
   If both of these fields are available and are mandatory (indicated by red asterisks), you can just enter one value and leave the other value blank. When you submit the form, the field with a value will be copied to the field that was left blank.
3. Click the '**Update**' button at the bottom of the screen.

> If you cannot change **Original Estimate** values on issues after work has been logged on them but you wish to do so, request that your JIRA administrator disables Legacy Mode on Time Tracking.
>
> If your JIRA administrator has added the ability to specify/modify time estimates on other workflow transition screens in JIRA's default workflow (or a customised workflow), you will be able to specify/modify time estimates during those workflow transitions too. Additionally, if your JIRA administrator has added this ability to JIRA screens used by other issue types, you can also specify time estimates when creating or editing these types of issues.

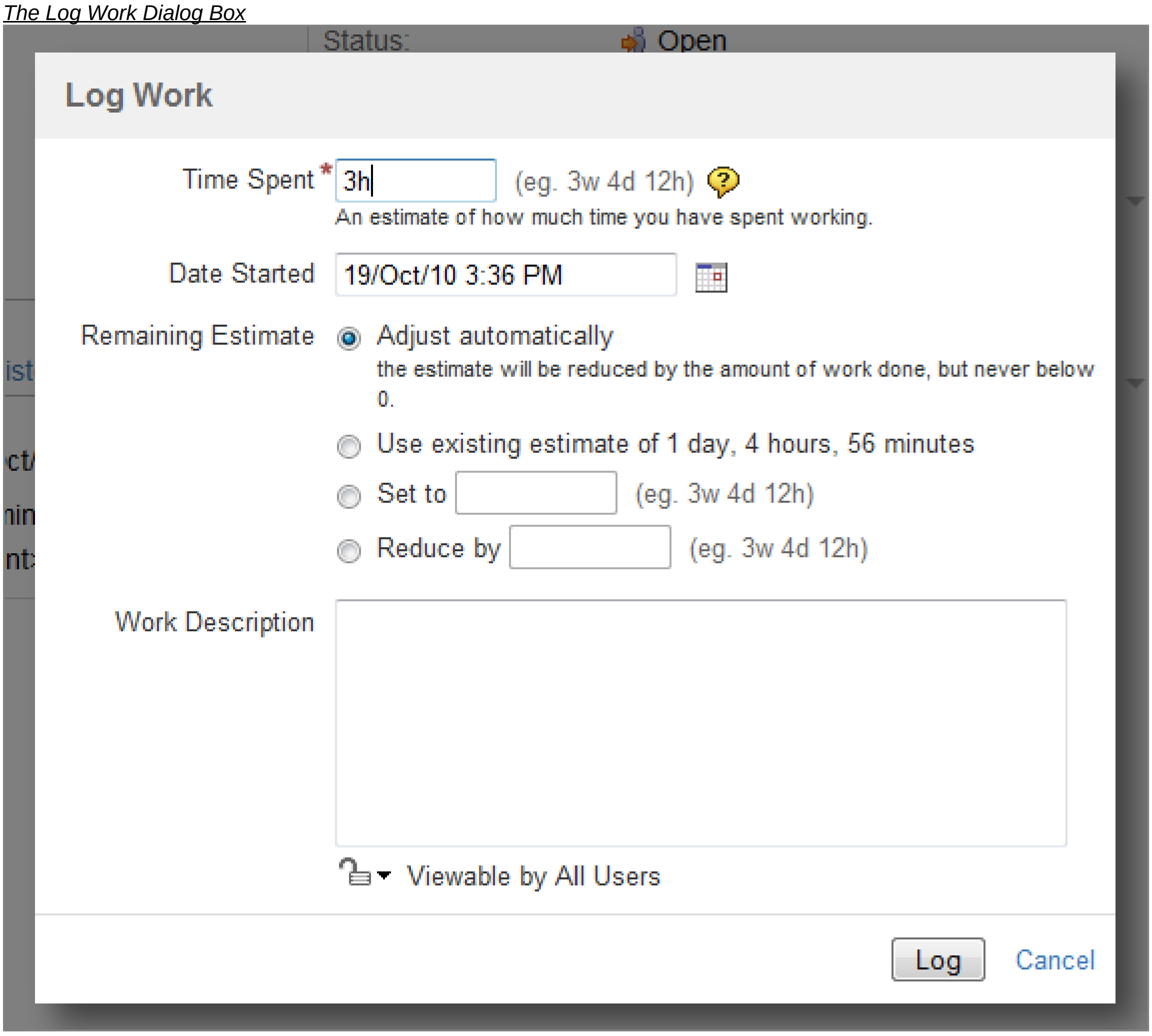
Logging work on an issue

Logging work when viewing an issue

To log work when viewing an issue:

1. Navigate to the issue and view its details.
2. Select '**Log Work**' from the **More Actions** drop-down menu.
3. The **Log Work** screen in a dialog box will be displayed.

The Log Work Dialog Box



4. In the **Time Spent** field, enter the amount of time to be logged. Use 'w', 'd', 'h' and 'm' to specify weeks, days, hours or minutes. For example, to log two hours of work, type '2h'.

   If you type a number without specifying a time unit (e.g. if you type '2' instead of '2h'), the default time unit as specified by your JIRA administrator will apply.
5. In the **Date Started** field, click the calendar icon to select the date/time when you started work. The calendar popup will be displayed, where you can:
   - use the month scroll back ('<') or forward ('>') icons to choose a different month.
   - use the year scroll back ('<<') or forward ('>>') icons to choose a different year.

     If you click and hold one of these scroll icons, a dropdown menu appears, allowing you to select a month or year from the list of options provided.
   - click the hour to increase it (or <Shift> click to decrease it).
   - click the minute to increase it (or <Shift> click to decrease it).
   - click 'am' / 'pm' to toggle between them.
6. The **Remaining Estimate** field affects the value of the issue's **Remaining Estimate** value. Select one of the following:
   - '**Adjust Automatically**' — Select this if you want to automatically subtract your **Time Spent** from the issue's current **Remaining Estimate** value.
   - '**Leave Estimate Unset**' — Select this if you do not want to specify any time estimates for the issue.

     This option is only displayed if no time estimates have been specified.
   - '**Use existing estimate of ...**' — Select this if you do not want to change the issue's **Remaining Estimate** value.

     This option is displayed if a time estimate has been specified.
   - '**Set to ...**' — Select this if you want to manually set the issue's **Remaining Estimate** value to the amount specified. If you select this option, enter your new estimate into the blank field below. Use 'w', 'd', 'h' and 'm' to specify weeks, days, hours or minutes. For example, to specify 'thirty minutes', type '30m'.
   - '**Reduce by ...**' — Select this if you want to manually reduce the issue's **Remaining Estimate** value by the amount specified. If you select this option, enter your new estimate into the blank field below. Use 'w', 'd', 'h' and 'm' to specify weeks, days, hours or minutes. For example, to specify 'thirty minutes', type '30m'.
7. In the **Work Description** field, type a description or comment about the work you have done.
8. Click the padlock icon to either set this work log to be viewable only by members of a particular project role or group; or you can allow all users to view it.

   For users to view a work log, they must have the **Browse Project** permission to view the issue and be a member of the project role or group selected in this step.

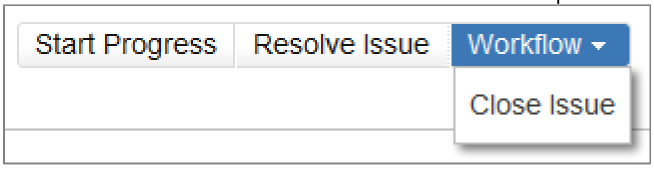
9. Click the **'Log'** button to return to the issue, and verify that:
    - the **Time Spent** that you just entered has been added to the issue's total **Time Spent** field.
    - the **Remaining Estimate** value that you just entered (or chose) matches the issue's **Remaining Estimate** field.

Logging work while resolving or closing an issue

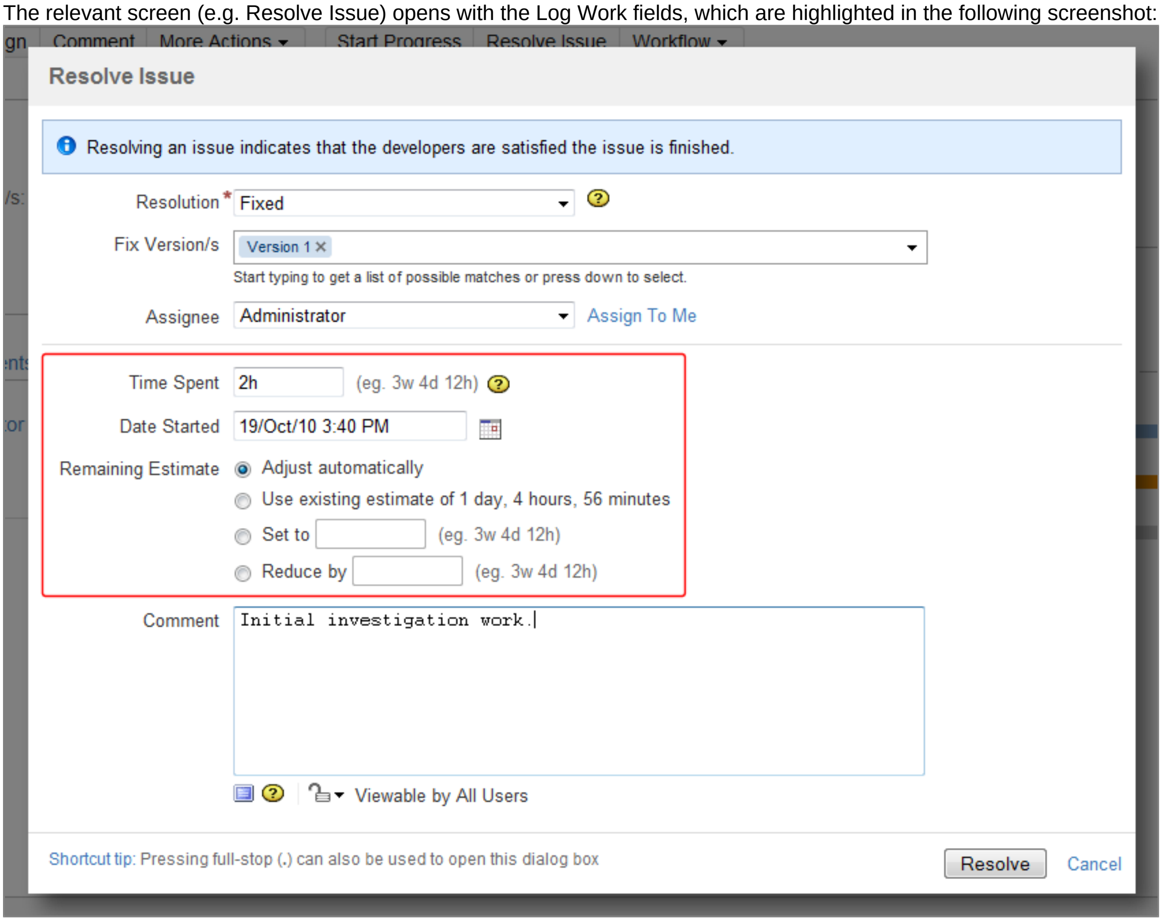
In addition to logging work when viewing an issue, you can also log work when resolving or closing an issue.

To log work on an issue while resolving or closing the issue:

1. Navigate to the issue and view its details.
2. Click either the '**Resolve Issue**' or '**Close**' buttons at the top of the issue:



The relevant screen (e.g. Resolve Issue) opens with the Log Work fields, which are highlighted in the following screenshot:



3. Edit the Log Work fields as described under the Logging work when viewing an issue section above.

> By default, JIRA should automatically copy the contents of your **Comments** to the **Workflow Description**. In doing so, the work log will be visible to members of the project role or group selected in the padlock icon dropdown.
>
> If this is not happening and you would like comments to be copied to workflow descriptions, request that your JIRA administrator enables JIRA's Copy Comments to Workflow Descriptions setting.
>
> If this setting is disabled:
>
> - The work log entry may be visible to anyone. If this is a concern, you need to edit this work log entry after creating it to modify its visibility.
> - Copying comments to workflow descriptions must be done manually after logging work.

4. Click the '**Resolve**' button (or the appropriately named button for your workflow transition or action) to return to the issue and verify that:
    - The **Time Spent** that you just entered has been added to the issue's total **Time Spent** field.
    - The **Remaining Estimate** value that you just entered (or chose) matches the issue's **Remaining Estimate** field.

If your JIRA administrator has added the ability to log work on other workflow transition sreens in JIRA's default workflow (or a customised workflow), you will be able to log work during those workflow transitions too. Additionally, if your JIRA administrator has if your JIRA administrator has added this ability to JIRA screens used by other issue types, you can log work when creating or editing these types of issues.

Editing a work log entry

1. Navigate to the issue and view its details.
2. Locate the **Activity** section and select the '**Work Log**' tab.
3. Locate the work log entry you wish to edit.
4. Click the '**Edit**' icon, located at the right of the work log entry.
5. The **Edit Work Log** screen will be displayed. Edit the fields as described under the Logging work when viewing an issue section above.
   Be aware that when you are editing a work log entry, you cannot specify an amount of time by which to reduce the Remaining Estimate. Hence, the '**Reduce By...**' field is not available on the **Edit Work Log** screen.
6. Click the '**Log**' button to return to the issue, and verify that:
   - the word **edited** is displayed to indicate that the work log entry has been edited. You can hover your mouse over this word to see who edited the work log and when this was edited.
   - the issue's total **Time Spent** field has been adjusted as per the **Time Spent** that you just edited.
   - the issue's **Remaining Estimate** value field has been adjusted as per the **Remaining Estimate** value that you just edited.

You can edit your own work log entries if you have been granted the **Edit Own Work Logs** permission. You can edit other people's work log entries if you have been granted the **Edit All Work Logs** permission.

Deleting a work log entry

1. Navigate to the issue and view its details.
2. Locate the **Activity** section and select the '**Work Log**' tab.
3. Locate the work log entry you wish to delete.
4. Click the '**Delete**' icon, located at the right of the work log entry.
5. Confirm the deletion by clicking the **'Delete'** button when prompted.
6. The **Delete Worklog** screen will be displayed. The **Adjust Estimate** field affects the value of the issue's **Remaining Estimate**. Select one of the following:
   - **'Auto Adjust'** — Select this if you want to automatically *add* the work log entry's **Time Spent** value back to the issue's current **Remaining Estimate** value.
   - **'Leave existing estimate of ... '** — Select this if do not want to change the issue's **Remaining Estimate** value.
   - **'Set estimated time remaining to ...'** — Select this if you want to manually set the issue's **Remaining Estimate** value to the amount specified. If you select this option, enter your new estimate into the blank field below. Use 'w', 'd', 'h' and 'm' to specify weeks, days, hours or minutes. For example, to specify 'thirty minutes', type '30m'.
   - **'Increase estimated time remaining by ...'** — Select this if you want to ...
7. Click the '**Delete**' button to confirm the deletion and return to the issue. Verify that:
   - the issue's **Work Log** tab no longer displays the work log entry that you just deleted.
   - the issue's **History** tab displays the **Worklog Id** (but not the description) of the deleted work log entry.
   - the issue's **Time Spent** field has been decreased by the value of the deleted work log entry's **Time Spent**.
   - the issue's **Remaining Estimate** field has been adjusted according to your choice in Step 6 (above).

You can delete your own work log entries if you have been granted the **Delete Own Work Logs** permission. You can delete other people's work log entries if you have been granted the **Delete All Work Logs** permission.

Customised JIRA installations

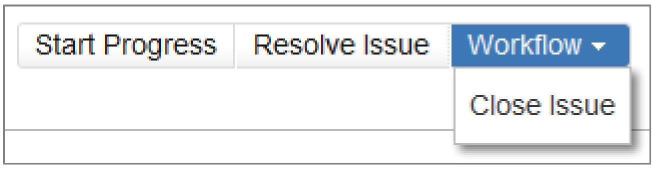
Logging work *and/or* specifying time estimates on the same JIRA screen

As described above, you can log work when viewing, resolving or closing an issue or specify time estimates when creating or editing an issue .

However, JIRA can be customised to allow work logging *and* specifying time estimates on the same JIRA screen when performing any JIRA operation, such as editing or creating an issue, or transitioning an issue to another status. To do this, your JIRA administrator must add both the **Log Work** *and* **Time Tracking** fields to the appropriate screen used by that operation.

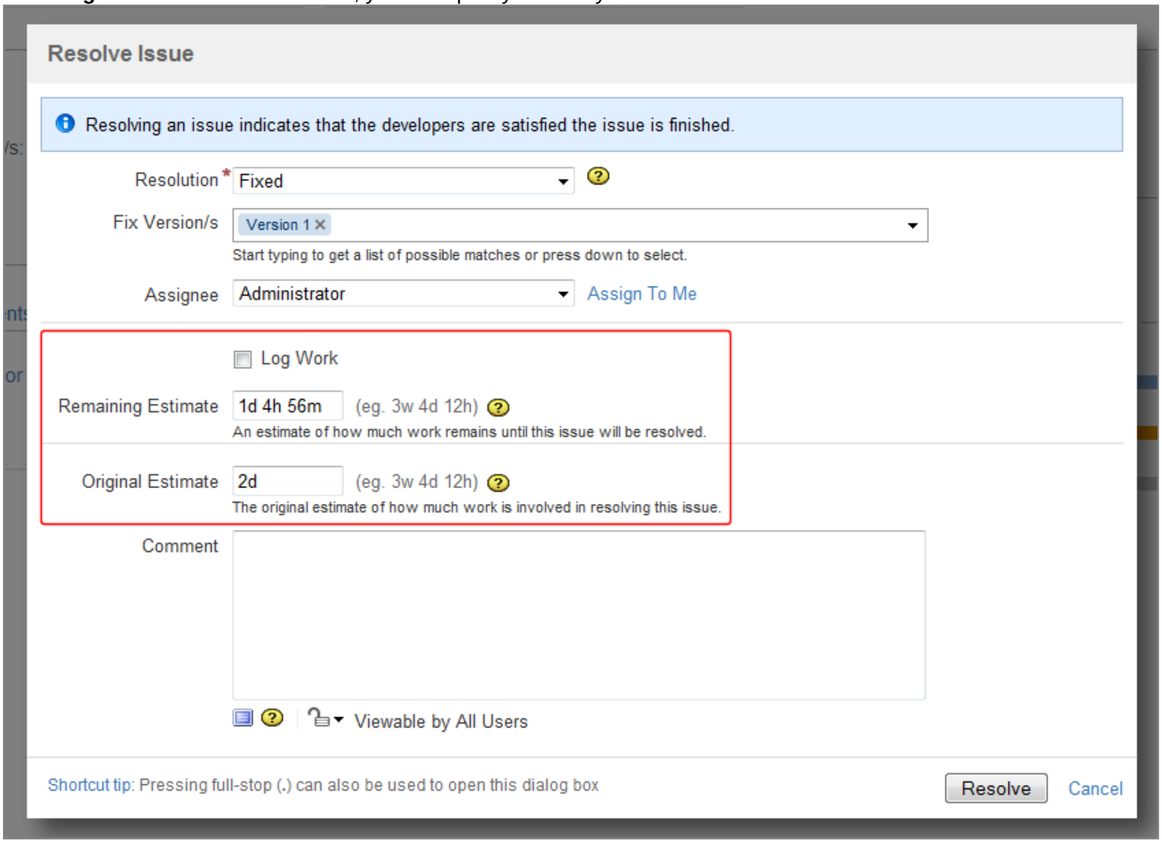
To log work *and/or* specify time estimates on the same JIRA screen:

1. Navigate to the issue and view its details.
2. Perform the customised JIRA operation that allows you to log work *and* specify time estimates on the same JIRA screen. For example, assuming that your JIRA administrator has added the **Time Tracking** fields to the **Resolve Issue Screen** (and assuming this screen also retains the default **Log Work** fields), click the '**Resolve Issue**' button at the top of the issue:

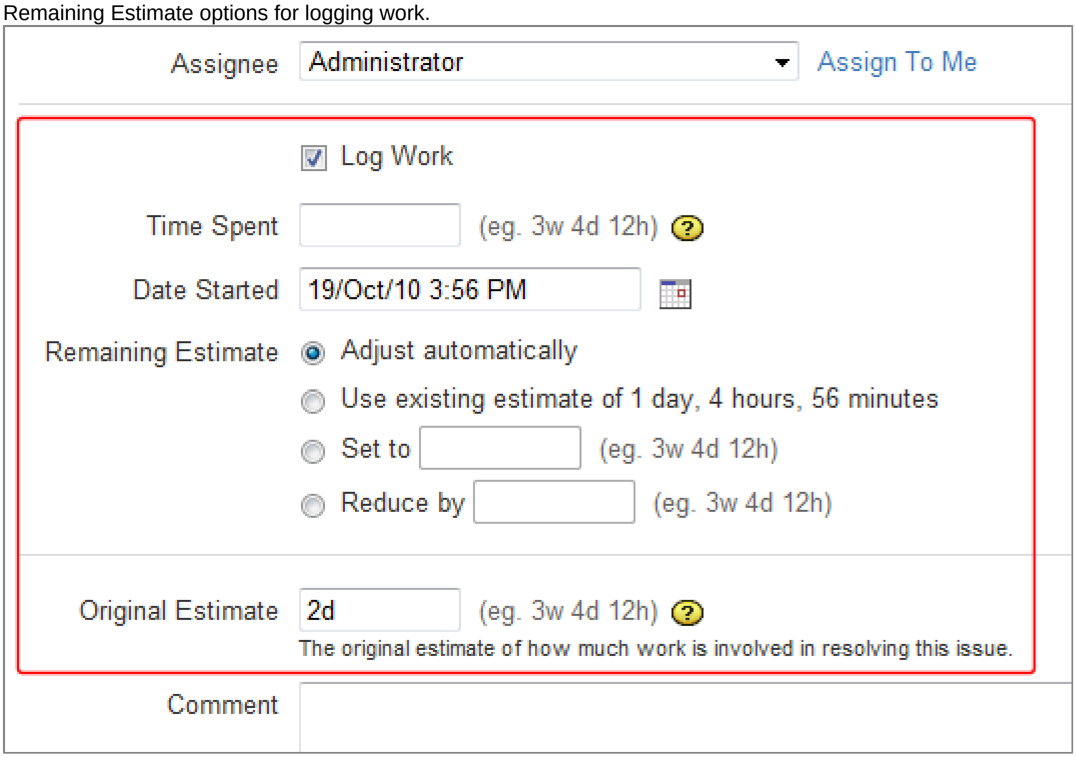


The relevant screen (e.g. Resolve Issue) opens with both the Log Work and Time Tracking fields, which are highlighted in the following three screenshots.

If logging work is optional (because your JIRA administrator has configured the Log Work fields as optional), then you can choose whether or not to log work during your JIRA operation, using the **Log Work** check box:
If the **Log Work** check box is cleared, you can specify or modify time estimates as usual:

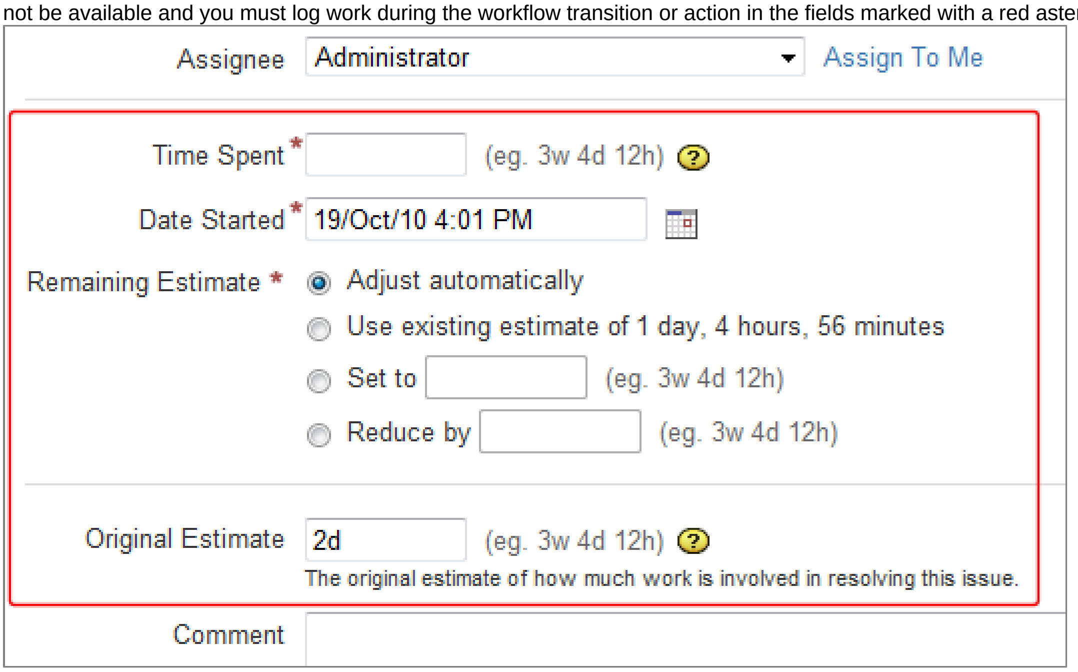


For more information about how to modify these fields, please refer to the Specifying Time Estimates section above.
If you select the **Log Work** check box, the Log Work fields become available and the **Remaining Estimate** field changes to the Remaining Estimate options for logging work.



For more information about how to modify these fields, please refer to the Logging work when viewing an issue section above.

If the Log Work fields are mandatory (because your JIRA administrator has configured them so), then the **Log Work** check box will not be available and you must log work during the workflow transition or action in the fields marked with a red asterisk:



For more information about how to modify these fields, please refer to the Logging work when viewing an issue section above.

If you are not creating an issue or Sub-Task or not explicitly using the Log Work action (above), only the **Comment** field (not the **Work Description** field) will be available for entering a description of the work activity logged.

By default, JIRA should automatically copy the contents of your **Comment** to the **Workflow Description**. In doing so, the work log will be visible to members of the project role or group selected in the padlock icon dropdown.

If this is not happening and you would like comments to be copied to workflow descriptions, request that your JIRA administrator enables JIRA's Copy Comments to Workflow Descriptions setting.

If this setting is disabled:

- The work log entry may be visible to anyone. If this is a concern, you need to edit this work log entry after creating it to modify its visibility.
- Copying comments to workflow descriptions must be done manually after logging work.

3. If you also wish to modify the time estimates, edit the relevant fields as described under Specifying time estimates (above).

See also

- Workload Pie Chart Report
- User Workload Report
- Version Workload Report
- Time Tracking Report

Modifying Multiple ('Bulk') Issues

On this page:

- About Bulk Operations
  - About the 'Bulk Change' Global Permission
  - Disabling Mail Notification for Bulk Operations
- Performing a Bulk Operation
  - Bulk Move
    - Select Issues
    - Select Projects and Issue Types
    - Select Projects and Issue Types for Sub-Tasks
    - Workflow Status Mapping
    - Field Updates
    - Retain Original Values
    - Bulk Move Confirmation
  - Bulk Edit
    - Available Operations

- Unavailable Operations

About Bulk Operations

'*Bulk Operations*' enable multiple operations to be performed on multiple issues at once. The bulk operations are performed on the result set of a search. The following list details the available bulk operations:

- **Workflow Transition**
  This operation allows multiple issues to be transitioned through workflow at once — e.g. resolve a collection of issues.
- **Delete**
  This operation allows multiple issues to be deleted at once.
- **Move**
  This operation allows multiple issues to be moved between projects and/or issue types at once. Please see the Bulk Move section for further details.
- **Edit**
  This operation allows multiple fields in multiple issues to be edited at once. Please see the Bulk Edit section for further details.

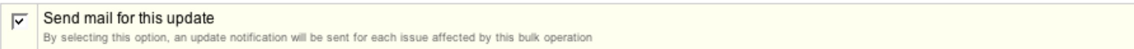
About the 'Bulk Change' Global Permission

In order to execute a bulk operation, you will need to be granted the appropriate project-specific permission and the global Bulk Change permission by your JIRA administrator. For example, you would need to must be granted both the '**Move Issue**' and '**Bulk Change**' permissions in order to execute the **Bulk Move** operation.

The project-specific permissions are still respected for the collection of issues selected for the bulk operation.

Disabling Mail Notification for Bulk Operations

It is possible to disable mail notification for a particular bulk operation by de-selecting the 'Send Notification' checkbox in the bulk operation wizard. In order for this option to be available, you must be an administrator or project administrator of all the associated projects on whose issues the bulk operation is being performed.



Performing a Bulk Operation

1. From the Issue Navigator, perform a search with the required filters to produce an issue result set.
2. Select the **Bulk Change** option from the '**Tools**' menu of the Issue Navigator. (Note: the **Bulk Change** link is only available to people who have been granted the global Bulk Change permission.) If the result set spans a number of pages, it is possible to select all issues within the result set to be considered for the bulk operation. Alternatively, all issues on the current page can be selected for the bulk operation.
3. The next screen allows the selection of the issues that the bulk operation is to be performed on.
4. The next screen allows the bulk operation to be selected - **Workflow Transition, Delete, Move** or **Edit.**
5. If the **Delete** operation is selected, the final step is confirmation of the delete operation on the issues selected.
6. If the **Edit** operation is selected, the next screen provides a list of the available edit operations that can be performed on the issues selected. Some operations may be unavailable; please check the Bulk Edit section (see below) for further details.
   - After selecting the required **Edit** operation(s), the final step is confirmation of the edit operation(s) on the selected issues.
7. If the **Move** operation is selected, the next screens allow a target project and issue type to be selected, with the ability to migrate workflow statuses and update required fields as necessary. Further details can be found in the Bulk Move section.
8. If the **Workflow Transition** operation is selected, the next screen shows the available workflow transitions that can be performed on the issues. The transitions are grouped by workflow — along with a list of the affected issues for each workflow transition. Once an operation is selected, the appropriate field screen for that operation is displayed — allowing any necessary field edits that are required to complete the transition. It should be noted that only those issues associated with the selected transition will be updated. It is only possible to select one transition per bulk workflow transition operation.

Bulk Move

The **Bulk Move** operation allows multiple issues to be moved at once. It is possible to move a selection of issues to a new project, with the ability to select a new issue type in certain cases. The issues are selected through the Issue Navigator as discussed above.

The operation is completed as follows:

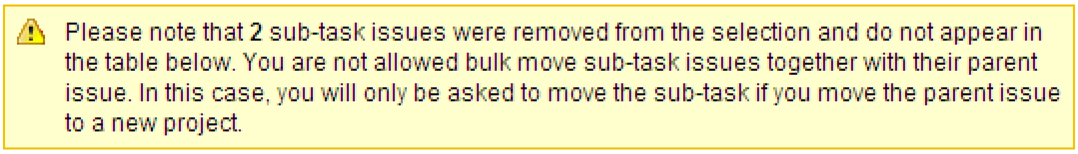
1. Select Projects and/or Issue Types
2. Select Projects and/or Issue Types for Sub-Tasks
3. Select status migration mappings for invalid statuses
4. Select values for required fields and fields with invalid values
5. Confirm changes to be made and complete the operation
   Note that steps 3 and 4 will occur once for each different target project and issue type combination.

Select Issues

The bulk move operation can be performed on both standard issues and sub-task issues. Standard issues can be moved to another project and issue type, whereas a sub-task can only have its issue type changed. (Note that it is possible to convert a sub-task to an issue, and vice versa.)

It is **not** possible to select *both* a sub-task and its parent to bulk move. This is so as to adhere to the parent/sub-task relationship (i.e. the sub-task is always located in the same project as the parent issue). Any sub-tasks of selected parent issues which were also selected will be automatically discarded from the move.

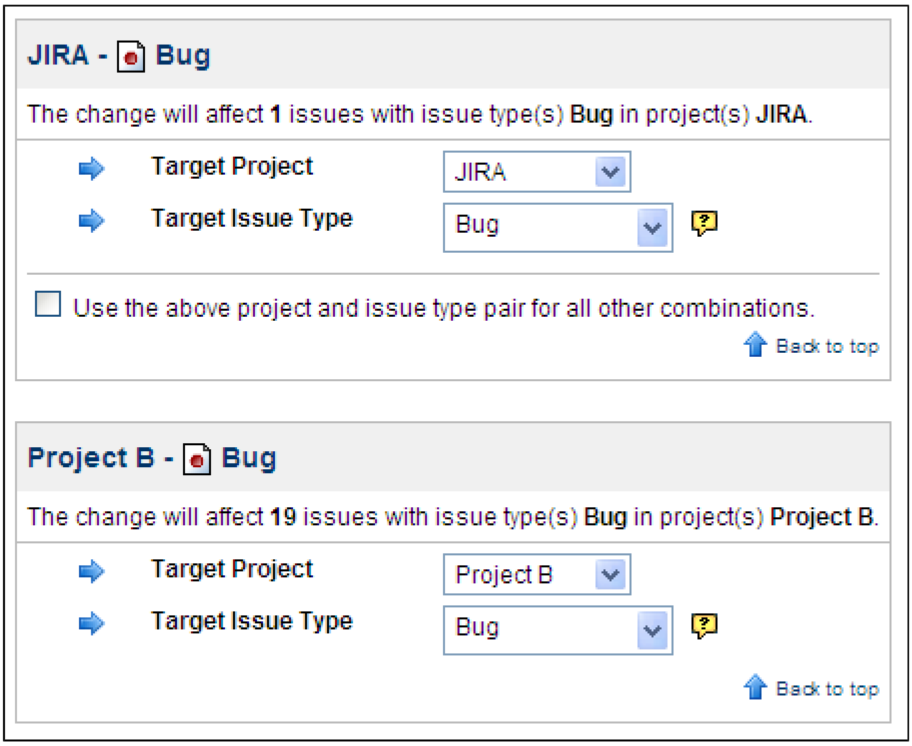
For example, you have issue B being a sub-task of issue A and you try to bulk move both A and B simultaneously. You will see a warning message (see below) and will be prompted to select a target project and issue type for issue A. If you select a new project for A, you will be prompted to move the sub-task to a new issue type based on issue A's new project. If you *don't* change the project for issue A, the sub-task will not be required to be moved.



Select Projects and Issue Types

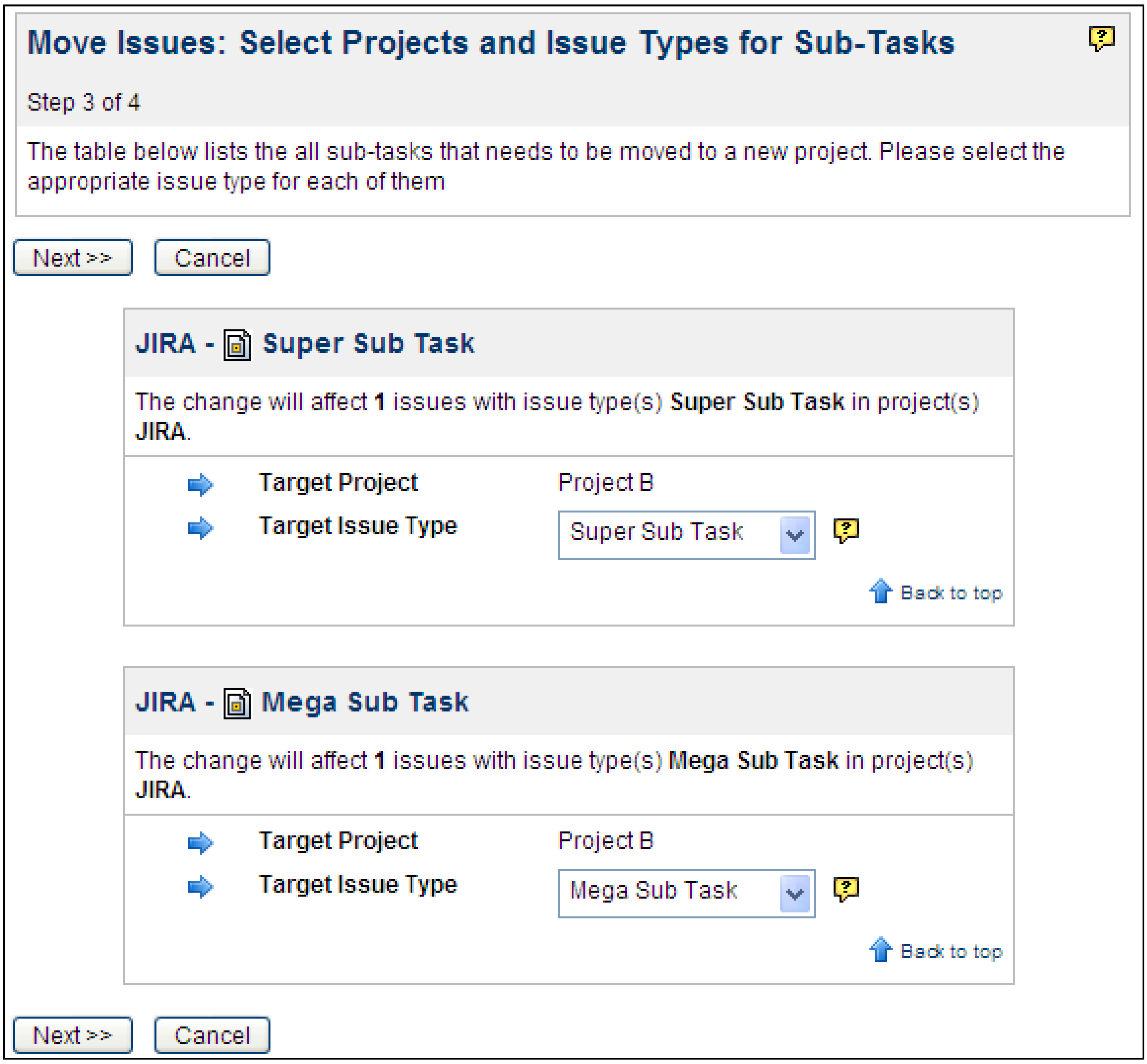
The first step of the Bulk Move wizard is to choose which projects and issue types you will move your issues to. The target project and issue type will determine whether extra steps will be required to migrate statuses and fields.

This screen shows all selected issues grouped by their current project and issue type. You can either select a new project and issue type for each one or choose to move all standard issues to a single project and issue type. To do this, select the check box with the label *Use the above project and issue type pair for all other combinations* and the selected project / issue type will apply. Note that this will not apply to sub-tasks since they cannot be moved to a standard issue type.



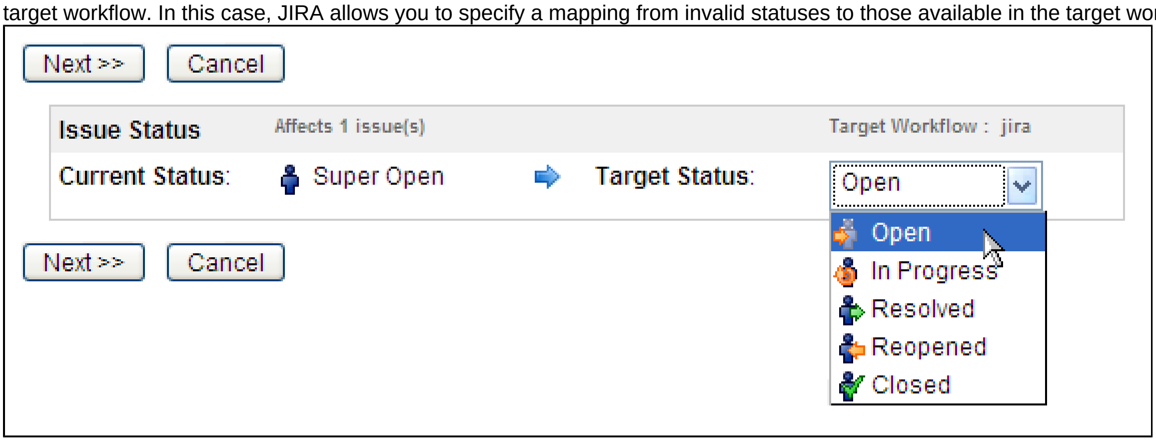
Select Projects and Issue Types for Sub-Tasks

If you are moving issues with sub-tasks to another project, you will also need to move the sub-tasks to the new project. On this screen you can elect to change the issue types of the sub-tasks being moved if you need to.

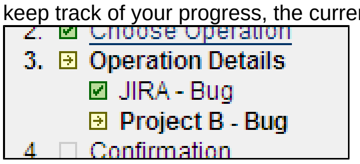


Workflow Status Mapping

As multiple workflows can be active simultaneously, some statuses associated with the collection of selected issues may not be valid in the target workflow. In this case, JIRA allows you to specify a mapping from invalid statuses to those available in the target workflow.



This step of the wizard will only appear if you have invalid statuses. If you are moving issues to different projects and issue types at the same time, you will complete this step as well as the next for each of the different target project and issue type combinations. To help you easily keep track of your progress, the current context, that is the target project and issue type, is highlighted in the left-hand 'progress' pane.



Field Updates

In order to adhere to the field configuration scheme associated with the target project and issue type, it may be necessary to update/populate required fields (e.g. fields that are required in the target project, but may not have been in the original project).

For each field that needs to be populated, you will be prompted to supply a value. This value will be applied to all issues that are being 'Bulk Moved' together (see '**Retain Original Values**' below for more details).

For the following fields, JIRA will provide a list of possible values for you to select from:

- Component
- Affects Version
- Fix Version
- Custom fields of type 'Version-Picker'

Note that versions which have been archived in the target project cannot be selected as the target when performing a bulk move. If you need to move issues into an archived version, you will need to first unarchive the version in the target project.

Retain Original Values

It is possible to retain original field values that are valid in the target destination by checking the **Retain** checkbox associated with the field. For example, some issues may already include a valid custom field value — these values can be retained, while issues that require an update will adopt the value specified on the '**Field Update**' screen.

- **Checked:** the original value is retained where possible[1]. The field will not be updated with the specified new value.
- **UnChecked:** all fields will be updated with the specified new value.

Note that the '**Retain**' checkbox is not available for the following fields, since an explicit mapping is required:

- Component
- Affects Version
- Fix Version
- Custom fields of type 'Version-Picker'

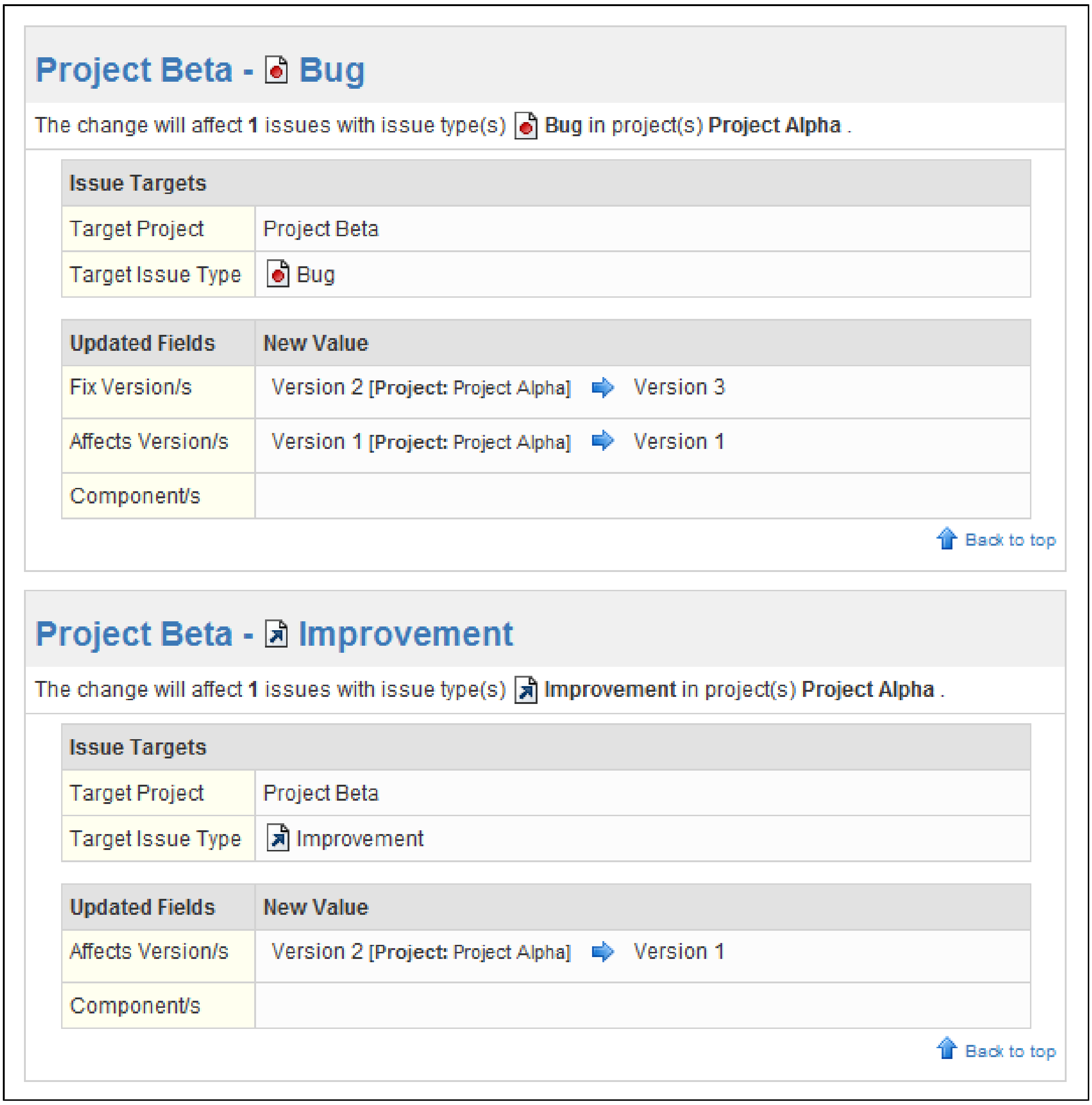
Bulk Move Confirmation

When all move parameters — e.g. target project, status mappings and field updates — have been specified for all issues, you will be presented with a confirmation screen displaying all changes that will be made to the issues being moved. The following details are displayed as applicable:

- **Issue Targets:** the target project and issue type
- **Workflow:** the target workflow and invalid status mappings
- **Updated Fields:** new values for fields that require updating
- **Removed Fields:** values to be removed in fields that are not valid in the target

The issues will only be moved once the **Confirm** button is clicked from the confirmation page. If the operation is exited anytime before this step, no changes will be made to the issues.

Screenshot: Bulk Move Confirmation



Bulk Edit

The **Bulk Edit** operations available depend on the issues selected and the nature of the field it changes.

Available Operations

The following table lists out the possible operations. Please note that *all* the conditions must be true for the corresponding operation to be available.

Available Operations	Conditions
Change Affects Version/s	• Selected issues belong to one project, and that project has version/s • This field is not hidden in any field configurations the selected issues belong to • Current user has 'edit issue' permission for all the selected issues
Change Assign To	• This field is not hidden in any field configurations the selected issues belong to • Current user has 'assign issue' permission for all the selected issues
Change Comment	• This field is not hidden in any field configurations the selected issues belong to • Current user has 'comment issue' permission for all the selected issues

Change Component/s	• Selected issues belong to one project, and that project has component/s • This field is not hidden in any field configurations the selected issues belong to • Current user has 'edit issue' permission for all the selected issues
Change Due Date	• This field is not hidden in any field configurations the selected issues belong to • Current user has 'edit issue' permission for all the selected issues • Current user has 'schedule issue' permission for all the selected issues
Change Fix For Version/s	• Selected issues belong to one project, and that project has version/s • This field is not hidden in any field configurations the selected issues belong to • Current user has 'edit issue' permission for all the selected issues
Change Issue Type	• Current user has 'edit issue' permission for all the selected issues
Change Priority	• This field is not hidden in any field configurations the selected issues belong to • Current user has 'edit issue' permission for all the selected issues
Change Reporter	• This field is not hidden in any field configurations the selected issues belong to • Current user has 'edit issue' permission for all the selected issues • Current user has 'modify reporter' permission for all the selected issues
Change Security Level	• This field is not hidden in any field configurations the selected issues belong to • All the selected projects are assigned the same issue level security scheme • Current user has 'edit issue' permission for all the selected issues • Current user has 'set issue security' permission for all the selected issues
Change Custom Fields	The 'Change Custom Fields' operation is available only if: • a global custom field exists **OR** • an issue type custom field exists and the issues are all of this specific issue type **OR** • a project custom field exists and the issues are all of the same project
Edit a Closed Issue	• Your workflow must allow editing of closed issues

Unavailable Operations

The fields listed in this section have no operations for bulk editing. This is because there is an alternative method or it is not logical to perform bulk edit on them.

The following system fields are unavailable for bulk editing:

- Attachments
- Summary
- Description
- Environment
- Project — Please use 'Bulk Move' to move issues between projects
- Resolution — Please use 'Bulk Workflow Transitions' to modify the resolution of issues
- Time Tracking fields — Original Estimate, Remaining Estimate, Time Spent

The following custom fields are unavailable for bulk editing:

- Import Id
- Read Only Text

Moving an Issue

JIRA allows you to easily move an issue from one project to another by using the 'Move Issue' wizard.

Please note that you must have the appropriate project permissions to move an issue from one project to another, i.e.

- You must have the 'Move Issues' permission for the project which has the issue that you want to move.
- You must have the 'Create Issues' permission for the project that you wish to move your issue to.

If you do not have either of this permissions, please contact your JIRA administrator to have these added to your user profile.

> If you wish to move multiple issues between projects at the same time, please refer to the documentation on bulk moving issues.

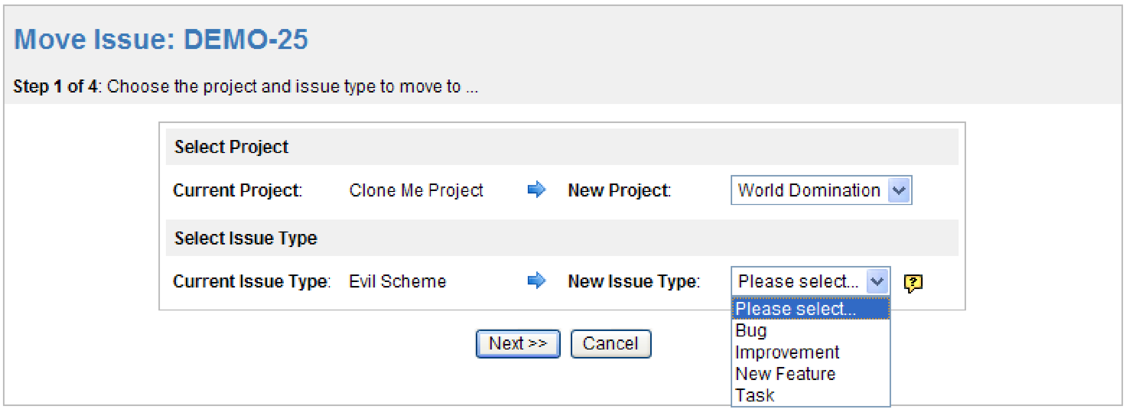
Moving an Issue

The 'Move Issue' wizard allows you to specify another project in your JIRA instance to move your selected issue to. As there may be significant differences in the configuration of your original project and target project, the 'Move Issue' wizard allows you to change certain attributes of the issue. These include:

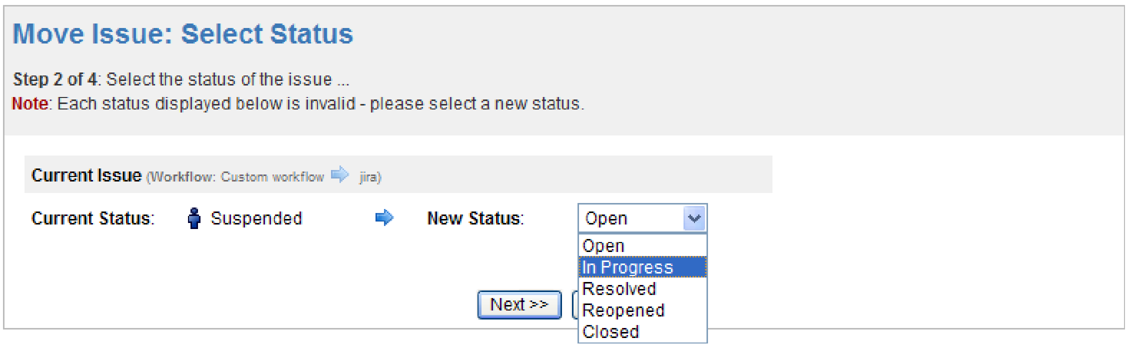
- **Issue Type** — If your issue is a custom issue type that does not exist in your target project, you must select a new issue type. You can also choose to arbitrarily change the issue type, if you wish.
- **Issue Status** — You may have set up custom issue statuses as part of a workflow. If you have assigned a custom status to your issue and it does not exist in your target project, you must select a new issue status for your issue. You cannot arbitrarily change the issue status, i.e. the option to change the issue status will only appear if you are required to change it.
- **Custom Fields** — If you have defined **required** custom fields for your issue, which do not exist in your target project, you must set values for them. You will only be prompted to change the enter values for **required custom fields** in the target project, that are missing values. If you wish to change the existing values for other fields on your issue, you can do this after the move is complete.

To move an issue:

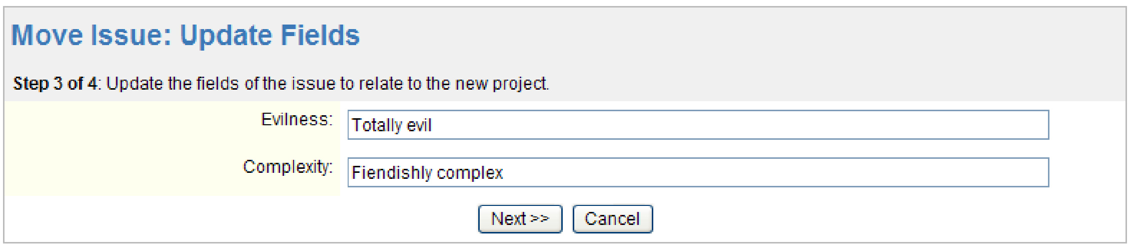
1. View the issue that you wish to move.
2. Select '**Move**' from the '**More Actions**' drop-down menu.
3. The first page of the 'Move Issue' wizard will display. Select the project that you wish to move your issue to, and if required/desired, change the issue type. Click '**Next**' to continue.



4. If you are required to change the status of your issue (see explanation above), the 'Select Status' page will display. Select the new status for your issue and click '**Next**' to continue.

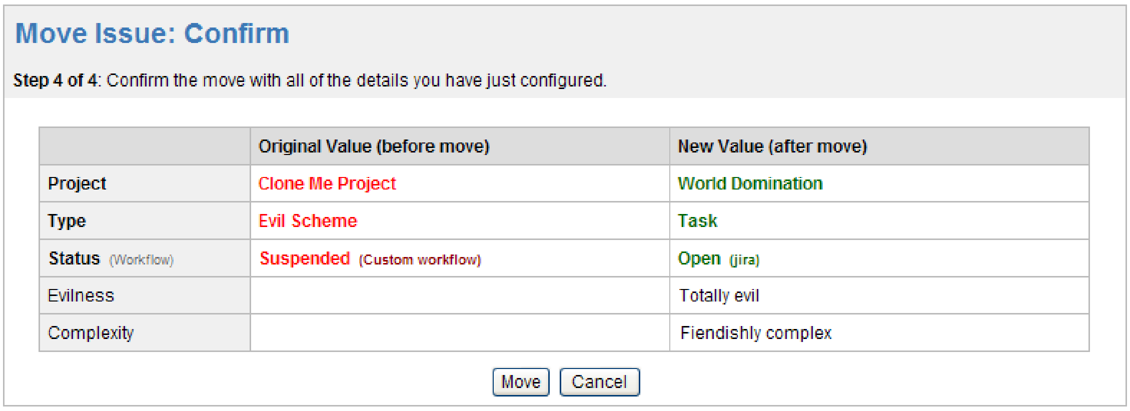


5. If you are required to specify the values for any required custom fields (see explanation above), the 'Update Fields' page will display. Specify the desired values for each field, and click '**Next**' to continue.



6. The 'Confirmation' page will display with all of your changes. If you wish to revise any of your changes, you can click the appropriate step in the left-hand menu to return to that page of the wizard. Once you are happy with your changes, click '**Move**' to move the

issue to the target project.



Move Issue: Confirm

Step 4 of 4: Confirm the move with all of the details you have just configured.

	Original Value (before move)	New Value (after move)
Project	Clone Me Project	World Domination
Type	Evil Scheme	Task
Status (Workflow)	Suspended (Custom workflow)	Open (jira)
Evilness		Totally evil
Complexity		Fiendishly complex

Move Cancel

7. Your issue will be moved to the target project and displayed on screen. You can now edit the issue to make further changes, if you wish.

Scheduling an Issue

On this page:

- Scheduling An Issue
- Searching by 'Due Date'
  - Using Simple Search
    - Fixed Date Searches
    - Relative Period Search
      - Due Date Popup
      - Relative Period Search Syntax
  - Using Advanced Search

Scheduling An Issue

To schedule an issue, populate its 'Due Date' field. This can be done either when creating an issue, or at a later stage by editing the issue.

> To enable Issue Scheduling, at least one group or project role must be given the 'Schedule Issues' permission by your JIRA administrator. Only users with the 'Schedule Issues' permission can populate the 'Due Date' field.

Searching by 'Due Date'

You can used either simple search or advanced search to search for issues by their Due Date.

Using Simple Search

You can search for issues using the search form Issue Navigator (see Searching for Issues. There are two ways to search for issues based on the 'Due Date' field. The first way is using fixed date values, the second is using periods that are relative to the current date.

Fixed Date Searches

There are two text fields in the search form that allow searching based on the 'Due Date' field.

- To search for all issues that are due after a certain date, enter the date into the 'Due After' text field of the Issue Navigator. For example to find all issues that are due after 1st June 2010, enter 1-6-2010 into the 'Due After' field. You can also use the Calendar popup to select a date by clicking the calendar icon to the right of the 'Due After' field.

- To search for issues that are due before a certain date, enter the date into the 'Due Before' date. For example, to find all issues that are due before 1st July 2010, enter 1-7-2010 into the 'Due Before' field.

It is also possible to search for issues that are due between two dates by populating both the 'Due After' and the 'Due Before' fields.

Relative Period Search

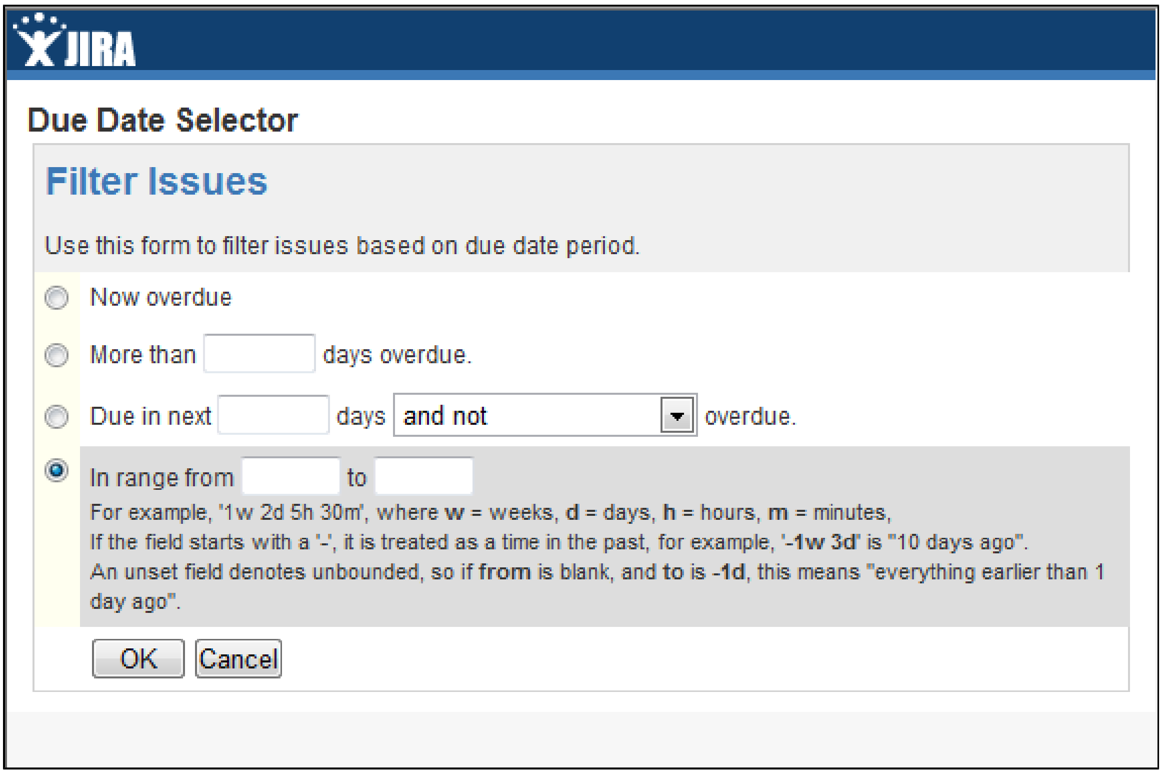
It is possible to perform a search that is relative to the time when it is run. For example, it is possible to do a search for issues that are due seven days from now. To do this, enter 7d into the 'Due Date To' text field of the Issue Navigator. If the search is saved and run the next day, the issues that are due in seven days from the time that the search is run will be retrieved. Thus, this search will find all issues that are due within a week every time it is run.

> These kind of searches are more useful when they are saved. For more instructions on how to save search filters, please refer to saving search filters.

The values that are entered into the 'Due Date From' and 'Due Date To' fields have to conform to a special syntax (described below). However, it is also possible to use the Due Date popup by clicking the icon to the right of the 'Due Date To' text field to specify the search period.

Due Date Popup

The Due Date popup is shown below.



- To search for issues that are overdue at the time of the search select the first radio button and click '**OK**'.
- To search for issues that are overdue by more than a certain number of days, populate the text field in the second row, (select the second radio button, if it is not selected for you automatically) and click '**OK**'.
- To search for issues that are due in the next certain amount of days and are not overdue at the time of the search, populate the text field in the third row with the number of days, and choose '**and not**' from the select box in the third row. Select the third radio button, if one it was not selected automatically, and click '**OK**'.
- To search for issues that are due in the next certain amount of days and are overdue at the time of the search, populate the text field in the third row with the number of days, and choose '**and**' from the select box in the third row. Select the third radio button, if one it was not selected automatically, and click '**OK**'.
- The fourth row of the popup is used for arbitrary period searches. Use the '**to**' text field to specify the upper bound of the search, and the '**from**' text field to specify the lower bound of the search. A blank text field means no bound. Populating the text fields in the fourth row, actually has the same effect as populating the 'Due Date From' and 'Due Date To' text boxes in the Issue Navigator. The fields in the popup expect entries in the same syntax as the ones in the Issue Navigator. The syntax is described below

Relative Period Search Syntax

The 'Due Date From' and 'Due Date To' fields use a special syntax to denote time period bounds. The syntax uses numbers and abbreviations that follow the numbers to represent what the numbers actually mean. The abbreviations are "w" for weeks, "d" for days, "h" for hours and "m" for minutes. For example, to specify 10 days in the future use "10d" or "1w and 3d". To specify a period bound in the past prefix the value with the "-" sign. For example to specify 2 days, 4 hours and 3 minutes ago, use "-2d 4h 3m".

Using Advanced Search

You can also use JIRA Query Language (JQL) to search for issues by Due Date — see Advanced Searching, and particularly the documentation on the 'Due' field.

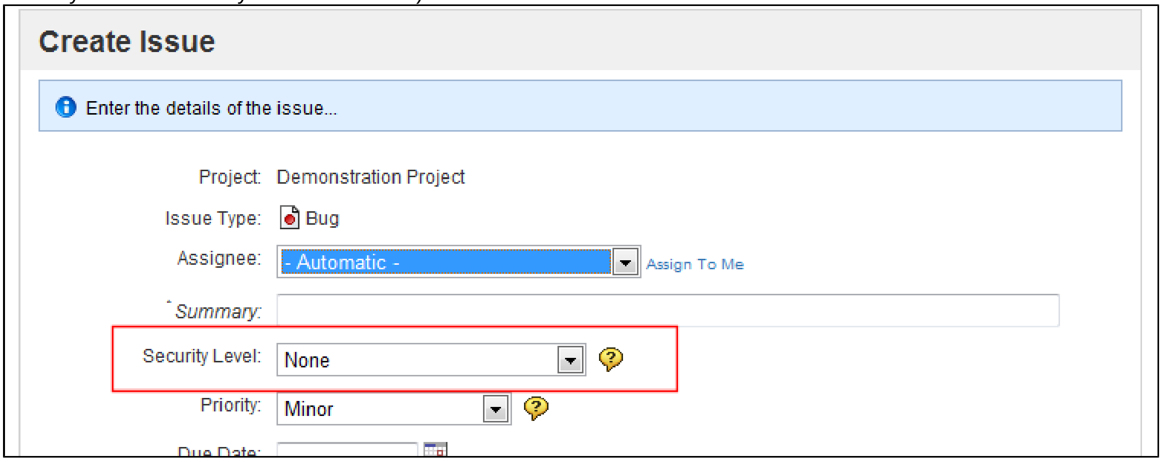
Setting Security on an Issue

Setting the Security Level on an issue restricts the access of that issue to only people who are a member of the chosen Security Level. If you are not a member of that Security Level then you cannot access that issue and it will not appear in any filters, queries or statistics.

The Security Level of an issue can be set either when the issue is being created or afterwards when the issue is being edited.

To be able to set the Security Level for an issue, your administator must add you to the appropriate Issue Security Level, and also grant you the 'Set Issue Security' permission for the appropriate project(s).

Setting Security on an Issue

1. Create/edit the relevant issue.
2. In the '**Security Level**' drop-down field, select the desired security level for the issue. (Note that the drop-down will only include Security Levels of which you are a member.)


3. When you save the issue, the issue will then only be accessible to members of that Security Level.

Note:

- A person can only set an issue to a Security Level of which they are a member. This prevents the issue from being set to a Security Level of which nobody is a member and effectively becoming 'lost'.
- If the person does not have the 'Set Issue Security' permission then the default Security Level will be used. This may mean that the issue created is not visible to the person that created it. (Issue Level Security should be configured by your administrator such that this does not happen.)

Viewing an Issue's Change History

An issue's *change history* is a record of changes made to an issue, including:

- changes to an issue field
- attachment of a file
- deletion of a comment
- deletion of a worklog
- creation or deletion of an issue link

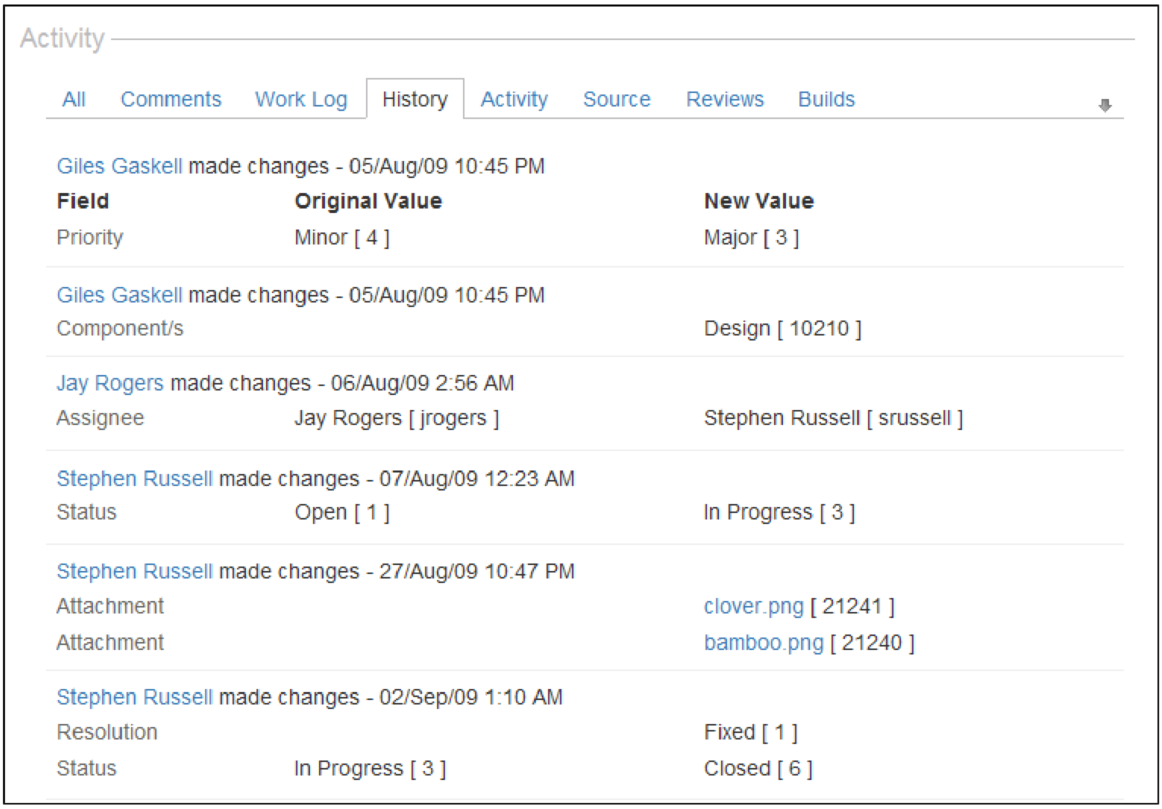
For each change, the following is recorded:

- the person who made the change
- the time at which the change was made
- if an issue field was changed, the new and old values of the field

To view an issue's change history,

1. Open the relevant issue in JIRA.
2. Click the '**History**' tab in the '**Activity**' section.
3. The list of changes to the issue will display, similar to the screenshot below.

Screenshot: An Issue's History



Viewing an Issue's Crucible Reviews

JIRA allows you to view the reviews related to an issue (that is, where the JIRA issue key was referenced in the commit message), if you are using Atlassian Crucible.

The **Reviews** tab provides you with an expandable list of code reviews related to the issue. This allows you to view the commit message and list of source-code files in each commit. You can also:

- view diffs and history for a file.
- download files.
- create a Crucible review and see the review status, if you are using Atlassian Crucible.

> To be able to view the changesets for an issue, your JIRA administrator must have configured the FishEye plugin appropriately. You will also need the 'View Version Control' permission in the appropriate projects.

Viewing an Issue's Reviews

1. Open the relevant issue in JIRA.
2. Click the '**Reviews**' tab in the '**Activity**' section.
3. The list of code reviews related to the issue will display, similar to the screenshot below.

Screenshot: The 'Reviews' Tab

See also

- Browsing a Project's Crucible Reviews

Viewing an Issue's FishEye Changesets

JIRA allows you to view the changesets related to an issue (that is, where the JIRA issue key was referenced in the commit message), if you are using a source-code repository together with Atlassian FishEye.

The **Source** tab provides you with an expandable list of changesets for the issue. This allows you to view the commit message and list of source-code files in each commit. You can also:

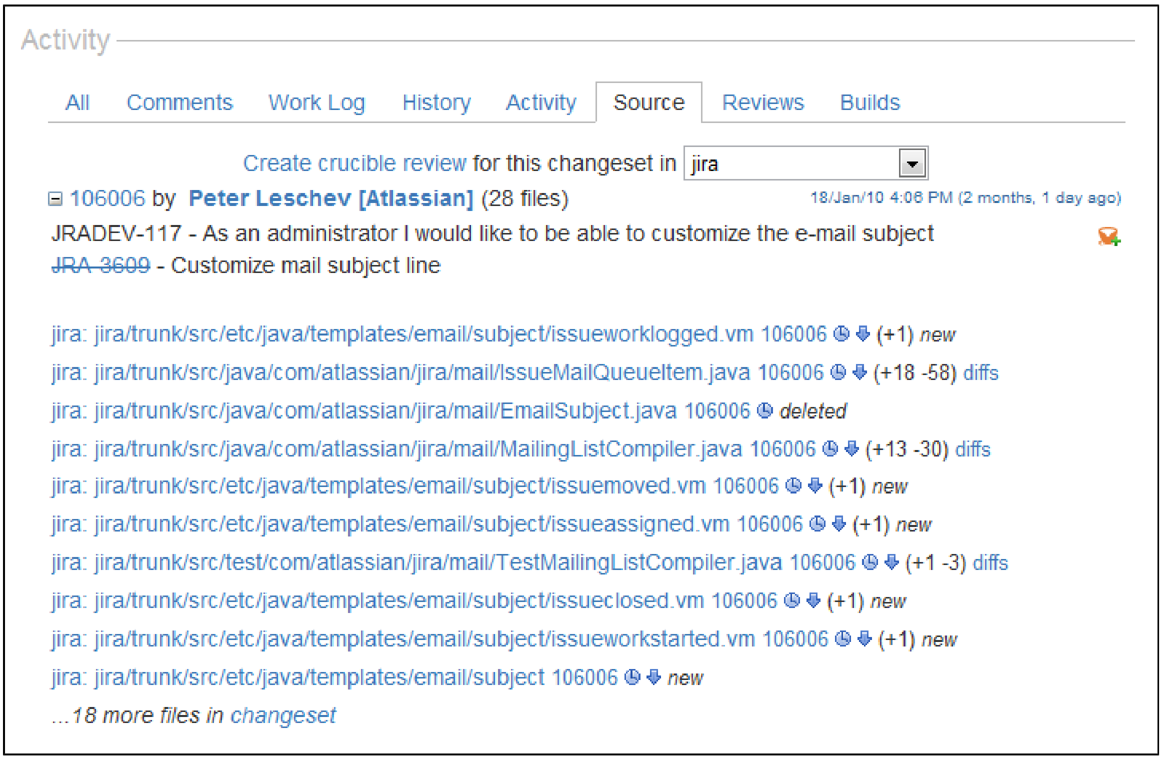
- view diffs and history for a file.
- download files.
- create a Crucible review and see the review status, if you are using Atlassian Crucible.

> To be able to view the changesets for an issue, your JIRA administrator must have configured the FishEye plugin appropriately. You will also need the 'View Version Control' permission in the appropriate projects.

Viewing an Issue's Changesets

1. Open the relevant issue in JIRA.
2. Click the '**Source**' tab in the '**Activity**' section.
3. The list of changesets related to the issue will display, similar to the screenshot below.

Screenshot: The 'Source' Tab



See also

- Browsing a Project's FishEye Changesets

Viewing the Bamboo Builds related to an Issue

If your organisation uses Atlassian's Bamboo and your administrator has integrated Bamboo with JIRA, you will be able to view the Bamboo builds related to an issue.

The '**Builds**' tab provides you with a list of the builds which the issue has been linked to, either as 'Fixed' or 'Related'. (See the Bamboo documentation for instructions on linking issues to builds.)

Each entry in the list will display information about the related build, including:

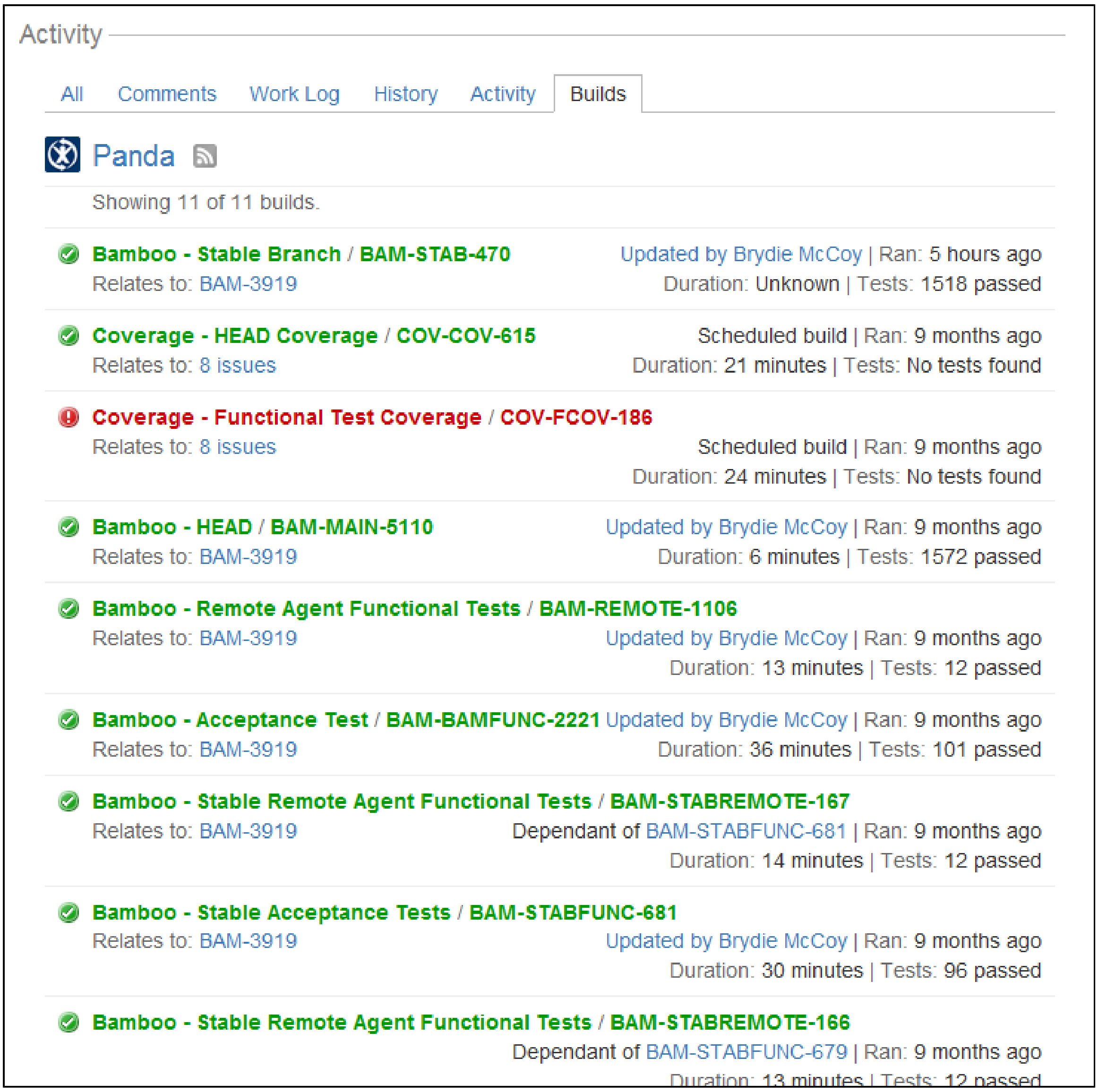
- the build name and name of the build plan
- when the build was last run
- summary information, such as related builds, duration of the build, tests passed
- build labels (if any)
- links to build artifacts (if any)

To view the Bamboo builds related to an issue,

1. Open the issue in JIRA.
2. In the '**Activity**' section, click the **'Builds'** tab.
3. The builds related to the issue will display, similar to the screenshot below.

> If you cannot see the '**Builds**' tab, your administrator may need to add the **'View Version Control'** permission to your project.

Screenshot: Viewing the Builds related to an Issue



See Also

- Browsing a Project's Bamboo Builds
- Browsing a Version's Bamboo Builds

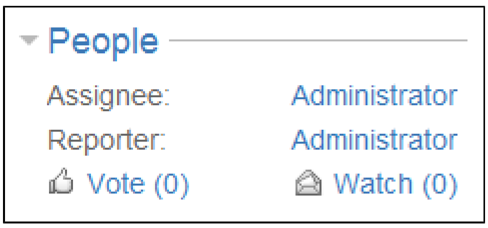
Watching and Voting on an Issue

JIRA allows you to **vote** for a particular issue — "voicing" your preference for that issue to be resolved or completed. JIRA also allows you to **watch** a particular issue, signing up for notifications of any updates relating to that issue (provided an appropriate notification scheme has been set up for the project by your JIRA administrator).

If you have the correct permissions (see below), you can also view the voter and watcher lists for an issue and, you can manage the watcher list — that is, add other people to the watcher list. This is useful if you need to draw someone's attention to a particular issue.

The voter and watcher lists are shown in at the right of the screen when viewing an issue:

Screenshot: an Issue's 'Votes and Watchers' section



You can:

- click Vote to instantly vote for the issue.
  At any subsequent time when logged in, click this again to remove your vote.
- if you have the correct permissions, click the hyperlinked number of votes to view the list of people who have voted for the issue.
- click Watch to instantly become a watcher of the issue.
  At any subsequent time when logged in, click this again to stop watching the issue.
- if you have the correct permissions, click the hyperlinked number of watchers to view and edit the list of people who are watching the issue. The **Watchers** form will appear (see screenshot below). You can type the required username(s) into the field provided, or click the 'user-picker' icon to select the username(s) from a list:

Screenshot: Watchers List

Permissions

JIRA incorporates two permissions to govern who may view/edit the voter and watcher lists:

- **View Voters and Watchers** — permits a user to view both the voter and watcher lists
- **Manage Watcher List** — permits a user to view/edit the watcher list

These permissions are granted by your JIRA administrator, through a Permission Scheme.

Please note: It is not possible to edit the voter list.

Searching for Issues

JIRA provides a powerful issue search facility. You can search for issues across projects, versions and components using a range of search criteria. If you need to find issues based on time-tracking details, then the standard 'simple search' interface also allows you to search against the work logged on issues. JIRA also makes custom fields available as search criteria, allowing you to refine your searches even further.

You can also save your search as an issue filter in JIRA, allowing you to recall the same search and run it again or even share it with other users. Read more about issue filters.

On this page:

- Performing a Simple Search
  - Specifying a Query
  - Searching particular Projects or Issue Types
  - Using the 'Components/Versions' section
  - Using the 'Issue Attributes' section
  - Using the 'Dates and Times' section
  - Using the 'Work Ratio' section
  - Using the 'Custom Fields' section

In this chapter:

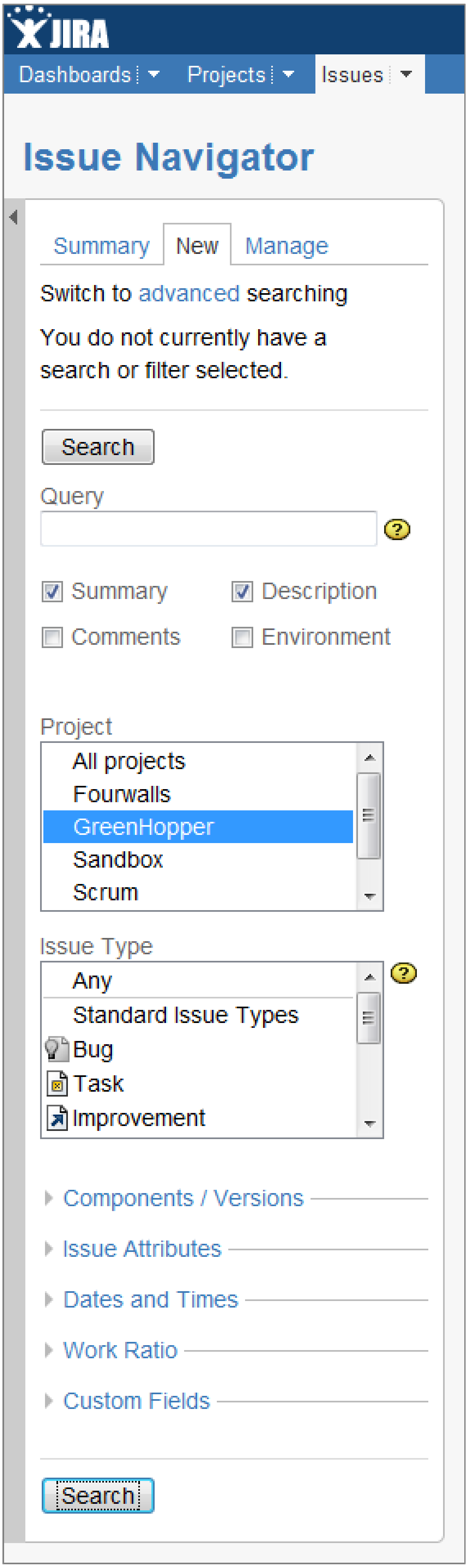
- Receiving Search Results as an RSS Feed
- Using Quick Search
- Customising your Issue Navigator
- Exporting Search Results to Microsoft Word
- Exporting Search Results to Microsoft Excel
- Receiving Search Results via Email
- Displaying Search Results as a Chart
- Using the Issue Navigator
- Saving Searches ('Issue Filters')

- Performing Text Searches
- Advanced Searching
- Displaying Search Results in XML

Performing a Simple Search

1. On the top navigation bar, click the '**Issues**' tab. This will display information on the issue filter or search you currently have selected, if any, on the left hand side of the page. If you have an issue filter or search currently selected, the results will be displayed in the 'Issue Navigator' on the right hand side of the page. Otherwise, no results will be shown.
2. If you currently have an issue filter or search selected and wish to run a new search, click the '**New**' link on the top left hand side of the page. The search form will display on the left-hand side of the screen.
3. Type your search term(s) into the '**Query**' box (see Specifying a Query below), and/or select other criteria from the drop-down boxes and check-boxes described below. The drop-down boxes and check-boxes allow you to narrow your search, e.g. to issues in a certain project, only issues that are marked as 'critical', only issues marked as 'enhancements', only issues reported by or assigned to a particular person.
4. Click the '**Search**' button to perform the search. Your search results will be displayed in the Issue Navigator.

Screenshot: The 'Simple Search' form



To hide the left-hand column and display your search results in full-screen width, click the icon.

To expand/collapse individual sections of the left-hand column, click the icon.

While you are interacting with JIRA, your current search will be remembered, along with whether the search you are using is new, a saved search, or a modification of a saved search.

Specifying a Query

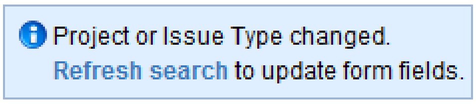
You can specify particular text to search for in any or all of the following fields:

- **Summary**
- **Description**
- **Environment**
- **Comments**

For details about how to refine your search term, please see Performing Text Searches.

Searching particular Projects or Issue Types

The **Project** and **Issue Type** fields determine which other fields are shown in the search form and what options you can see for these fields. For example, the 'Version' and 'Component' fields (see below) will only be available when searching for a single project, and will have different options for each project. When you change the project(s) or issue type(s), you may need to *refresh* the search filter in order to get the most up-to-date versions, components and custom fields. If a refresh is needed, a blue box will appear, containing a link for you to click:



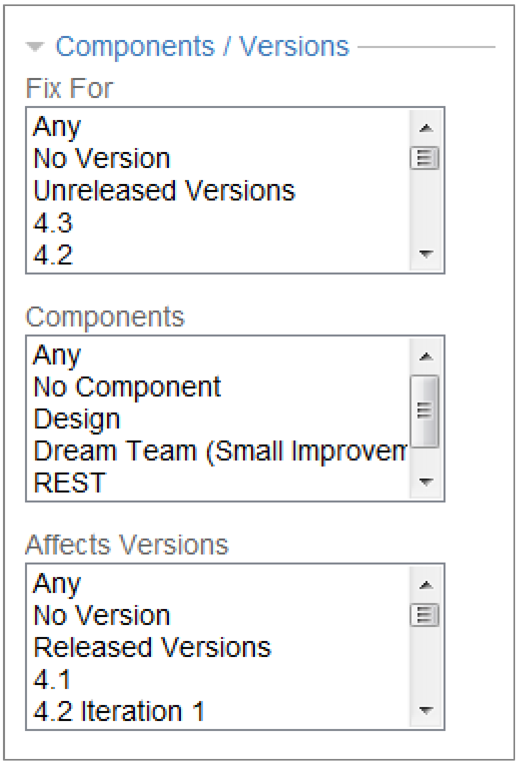
If you search on a single project, JIRA will remember that as your selected project and will default to that project on the "Browse Project" and "Create Issue" screens.

Using the 'Components/Versions' section

You can search for issues in a particular:

- **Component**
- **Affects Version**
- **Fix Version**

Screenshot: The 'Components' section



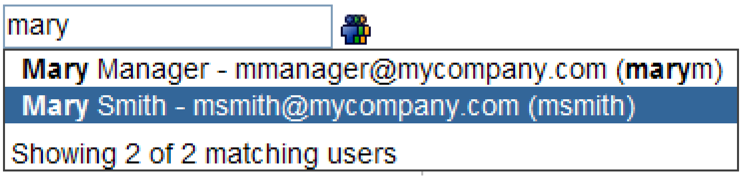
To learn more about components and versions, please see What is a Project?.

Using the 'Issue Attributes' section

You can specify particular values for the following fields:

- **Reporter**
- **Assignee**
- **Status**
- **Resolutions**
- **Priorities**
- **Labels**

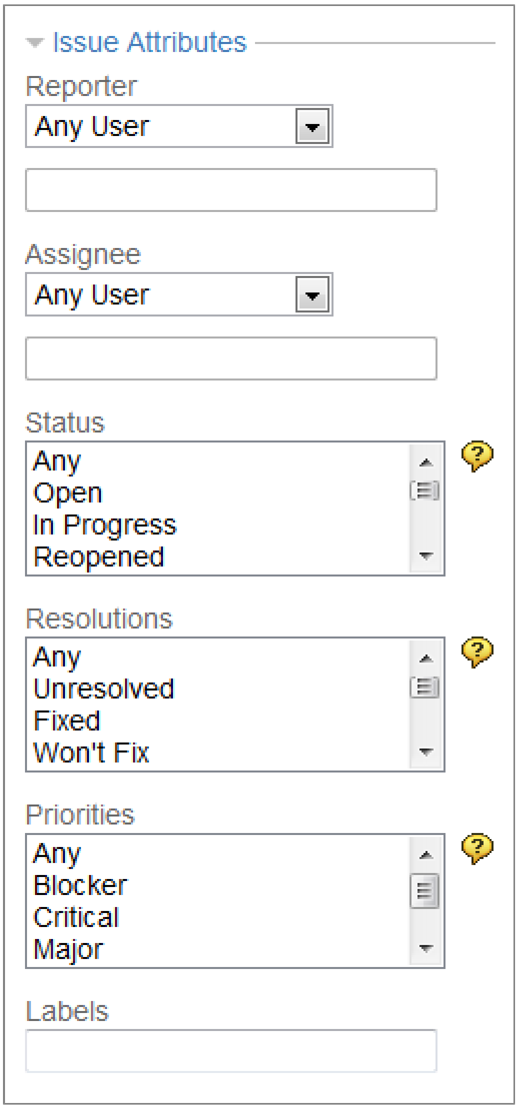
For example, to find issues reported by a particular person, select 'Specify User' in the '**Reporter**' field. In the field that appears beneath, type a few letters of the person's name (first name or surname) to display a drop-down list of matching names:



Alternatively, click the icon to display a pop-up list of all names on your JIRA system.

Please note: if the names drop-down does not display, your administrator may have disabled the 'User Picker Auto-complete' feature for your JIRA instance.

Screenshot: The 'Issue Attributes' section

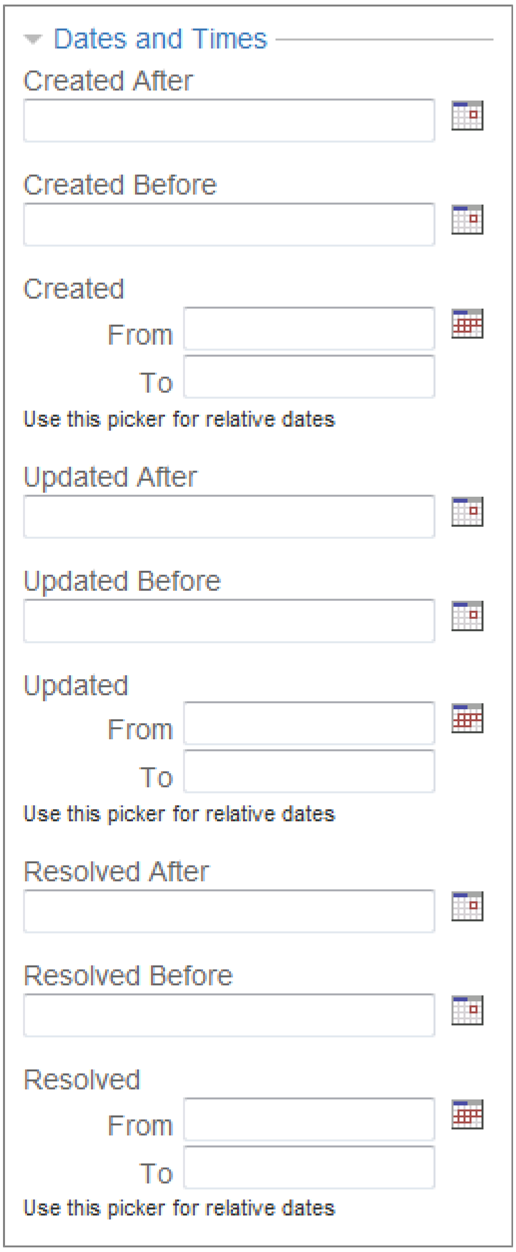


Using the 'Dates and Times' section

You can search for issues that were:

- **Created** after or before a particular date, or during a particular date range
- **Updated** after or before a particular date, or during a particular date range
- **Due** after or before a particular date, or during a particular date range
- **Resolved** after or before a particular date, or during a particular date range

Screenshot: The 'Dates and Times' section



Using the 'Work Ratio' section

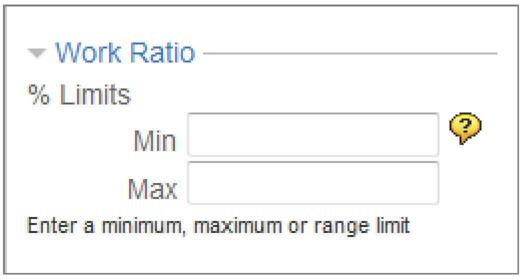
The search form contains a 'Work Ratio' section, enabling you to search JIRA issues based on time-tracking details.

The 'Work Ratio' search is based on the **Actual** work logged against an issue versus the original **Estimated** work duration.

- **Work Ratio Percentage = (Time Spent / Original Estimate) x 100**

You can enter a minimum, maximum or percentage range; the search will respectively return all issues above, below or within the specified percentage range.

Screenshot: The 'Work Ratio' section



Using the 'Custom Fields' section

Your administrator may have created custom fields for your JIRA system. Custom fields can be searched, but note that they will only appear in the search form on the left when appropriate. That is:

- Custom fields that relate to a particular *project* will only appear in the search form after you choose that project.
- Custom fields that relate to a particular *issue type* will only appear in the search form after you choose that issue type.

Receiving Search Results as an RSS Feed

JIRA enables you to subscribe to an RSS 2.0 feed that is based on any issue filter (saved search), or on your chosen search results, as displayed in the Issue Navigator.

You can choose either an RSS feed that contains issue data **(Summary, Description,** etc), or one that contains comments.

Note that the **tempMax** parameter can be used to control the maximum number of issues that are returned, e.g. sample RSS feed of the latest 15 issues reported on jira.atlassian.com.

Subscribing to an RSS Feed

To subscribe to an RSS feed,

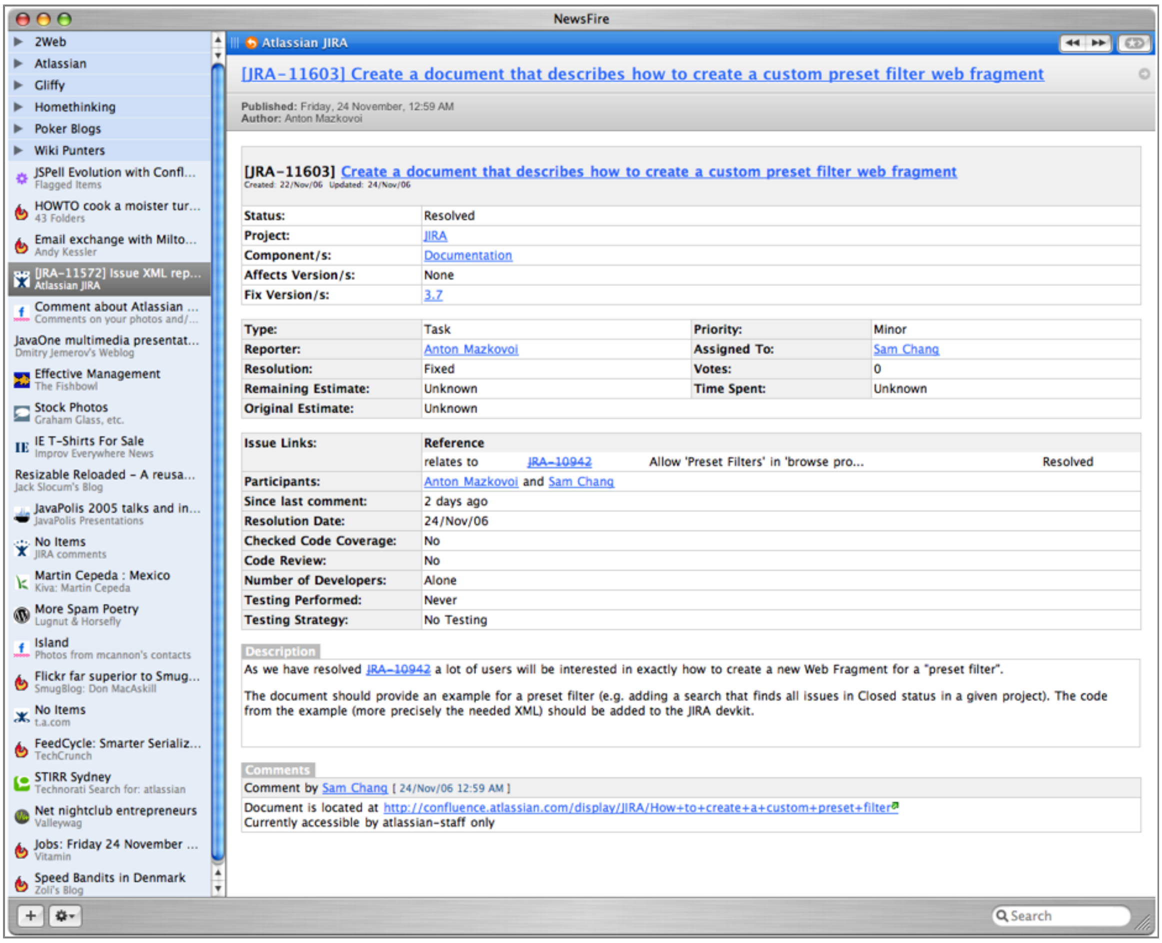
1. On the top navigation bar, click the **'Issues'** tab.
2. Refine your search, as described in *'Searching for Issues'*, until the required results are displayed in the Issue Navigator.
3. Click the **'Views'** menu, and select one of the following:
   - **'RSS (Issues)'** — this will create an RSS feed that contains just issue data.
   - **'RSS (Comments)'** — this will create an RSS feed that contains comments.

   HINT: *To only receive current comments, use the* ***Updated, Updated After*** *and* ***Updated Before*** *fields in the* ***'Dates and Times'*** *section of the search form. E.g. to only receive comments created in the last week, type* `-1w` *in the* ***From*** *field.*
4. Copy the URL that is currently displayed on your **Issue Navigator** screen.

   NOTE: *The* ***tempMax*** *parameter can be used to control the maximum number of issues returned in your RSS feed.*
5. Paste the URL into your RSS reader.

   NOTE: *If you are getting an empty RSS feed, make sure you have logged in to JIRA — see Accessing protected data (below).*

Here is a sample RSS feed:



Accessing protected data

When accessing data generated from JIRA, you may find that access to some resources requires user authentication (i.e. requires you to login). There are three options for this:

1. To enable access to data without logging in, your JIRA administrator may specify the 'Browse' permission for **Anyone.**
2. You can provide the parameters **os_username** and **os_password** in the request URL (e.g. `http://jira.atlassian.com/browse/TST-1?os_username=tester&os_password=tstpassword`). The problem with this method is that it transmits your username and password across the wire in clear text, which may not be an option for some users.
3. You can provide the request parameter **os_authType=basic** (e.g. `http://mycompany.com/anypage?os_authType=basic`). This will force the server to issue a challenge for user credentials (i.e. a login prompt) via the basic http authentication protocol. If you are running over SSL, you still need to specify the **os_authType=basic** parameter if you require the user to authenticate.

Related Topics

- Exporting Search Results to XML
- Adding the Activity Stream Gadget

Using Quick Search

Sometimes you just want to be able to get to the particular issue that you are interested in. Other times you can't remember what the issue was, but you remember that it was an open issue, assigned to you. Quick Search can help you.

On this page:

- Jump to an Issue
- Smart Querying
- Free-text searching
- Searching JIRA issues from your Browser's Search Box

Jump to an Issue

The Quick Search box is located at the top right of your screen. If you type in the **key** of an issue, you will jump straight to that issue. For example, if you type in 'ABC-107' (or 'abc-107'), and press the **Enter** you will be redirected to the JIRA issue 'ABC-107'.

In many cases, you do not even need to type in the full key, but just the numerical part. If you are currently working on the 'ABC' project, and you type in '123', you will be redirected to 'ABC-123'.

Smart Querying

Quick Search also enables you to perform 'smart' searches with minimal typing. For example, to find all the open bugs in the 'TEST' project, you could simply type 'test open bugs', and Quick Search would locate them all for you.

Your search results will be displayed in the Issue Navigator, where you can view them in a variety of useful formats (Excel, XML, etc).

The search terms that Quick Search recognises are:

Search Term	Description	Examples
my	Find issues assigned to me.	my open bugs
r:	Find issues reported by you, another user or with no reporter, using the prefix *r:* followed by a specific reporter term such as *me*, a username or *none*. *Note that there can be no spaces between "r:" and the specific reporter term.*	r:me — finds issues reported by you. r:samuel — finds issues reported by the user whose username is "samuel". r:none — finds issues with no reporter.
<project name> or <project key>	Find issues in a particular project,	test TST tst
overdue	Find issues that were due before today.	overdue
created: updated: due:	Find issues with a particular Created, Updated, or Due Date using the prefixes *created:*, *updated:*, or *due:*, respectively. For the date range, you can use *today*, *tomorrow*, *yesterday*, a single date range (e.g. '-1w'), or two date ranges (e.g. '-1w,1w'). Note that date ranges cannot have spaces in them. Valid date/time abbreviations are: 'w' (week), 'd' (day), 'h' (hour), 'm' (minute).	created:today created:yesterday updated:-1w — finds issues updated in the last week. due:1w — finds issues due in the next week. due:-1d,1w — finds issues due from yesterday to next week. created:-1w,-30m — finds issues created from one week ago, to 30 minutes ago. created:-1d updated:-4h — finds issues created in the last day, updated in the last 4 hours.
<priority>	Find issues with a particular Priority.	blocker normal low
<issue type>	Find issues with a particular Issue Type. Note that you can also use plurals.	bug task bugs tasks
c:	Find issues with a particular Component(s). You can search across multiple components. *Note that there can be no spaces between "c:" and the component name.*	c:security — finds issues with a component whose name contains the word "security".

<table>
<tr><td>v:</td><td>Find issues with a particular Affects Version(s). To find all issues belonging to a 'major' version, use the wildcard symbol '*'.

Note that there can be no spaces between "v:" and the version name.</td><td>v:3.0 — finds issues that match the following versions (for example):
3.0
3.0 eap
3.0 beta...but will not match against the following versions (for example):
3.0.1
3.0.0.4
That is, it will match against any version that contains the string you specify followed immediately by a space, but not against versions that do not contain a space immediately after the string you specify.</td></tr>
<tr><td>ff:</td><td>Find issues with a particular Fix For Version(s). Same usage as v: (above).</td><td></td></tr>
<tr><td>*</td><td>Wildcard symbol '*'. Can be used with v: and ff:.</td><td>v:3.2* — finds any issue whose version number is (for example):
3.2
3.2-beta
3.2.1
3.2.x</td></tr>
</table>

In Mozilla-based browsers, try creating a bookmark with URL http://<your-JIRA-site>/secure/QuickSearch.jspa?searchString=%s (substituting <your-JIRA-site> with your JIRA site's URL) and keyword (such as *'j'*). Now, typing *'j my open bugs'* in the browser URL bar will search your JIRA site for your open bugs. Or simply type your search term in the Quick Search box, then right-click on the Quick Search box (with your search term shown) and select "Add a Keyword for this search...".

Free-text searching

You can search for any word within the issue(s) you are looking for, provided the word is in one of the following fields:

- Summary
- Description
- Comments

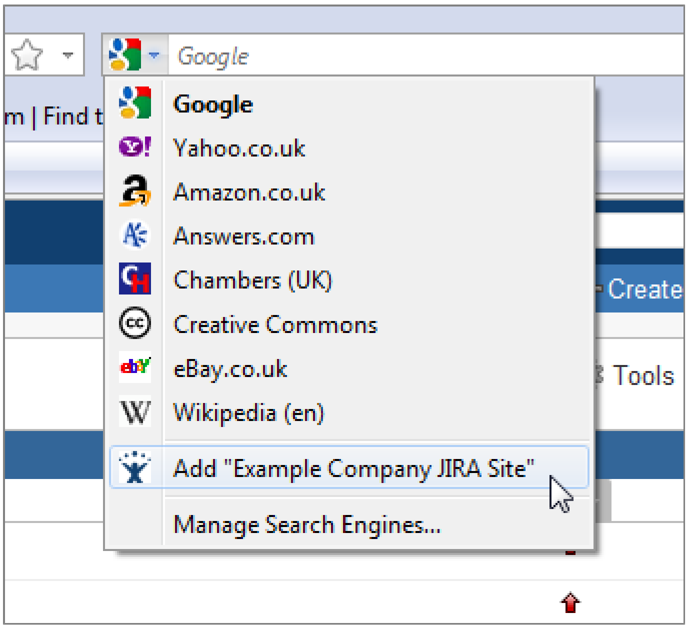
Note that, unlike the keywords listed under 'Smart Querying' above, free-text search works in both the Quick Search box *and* the Issue Filter Text Search box.

Note that you can combine free-text and keywords together. For example, *'my closed tst tasks'*, *'open test bugs pear'*, *'closed test bugs '* are all valid search queries.

Searching JIRA issues from your Browser's Search Box

If you are using Firefox or Internet Explorer 7 or later, you can add your JIRA site as a search engine/provider via the dropdown menu next to the browser's search box.

The example below shows a JIRA site called "Example Company JIRA Site", which is offered for inclusion as a search engine/provider in the browser's search box, when you visit that site.



Once you add your JIRA site as a search engine/provider in your browser, you can use it at any time to conduct a Quick Search for issues in that JIRA site.

OpenSearch

JIRA supports this browser search feature as part of the autodiscovery part of the OpenSearch standard, by supplying an OpenSearch description document. This is an XML file that describes the web interface provided by JIRA's search function. Any client applications that support OpenSearch will be able to add JIRA to their list of search engines.

Customising your Issue Navigator

The Issue Navigator displays the search results from an issue filter, a Quick Search or an Advanced Search.

You can customise your Issue Navigator by choosing:

- which **columns** (i.e. issue fields) to display
- how many **rows** (i.e. issues) to display

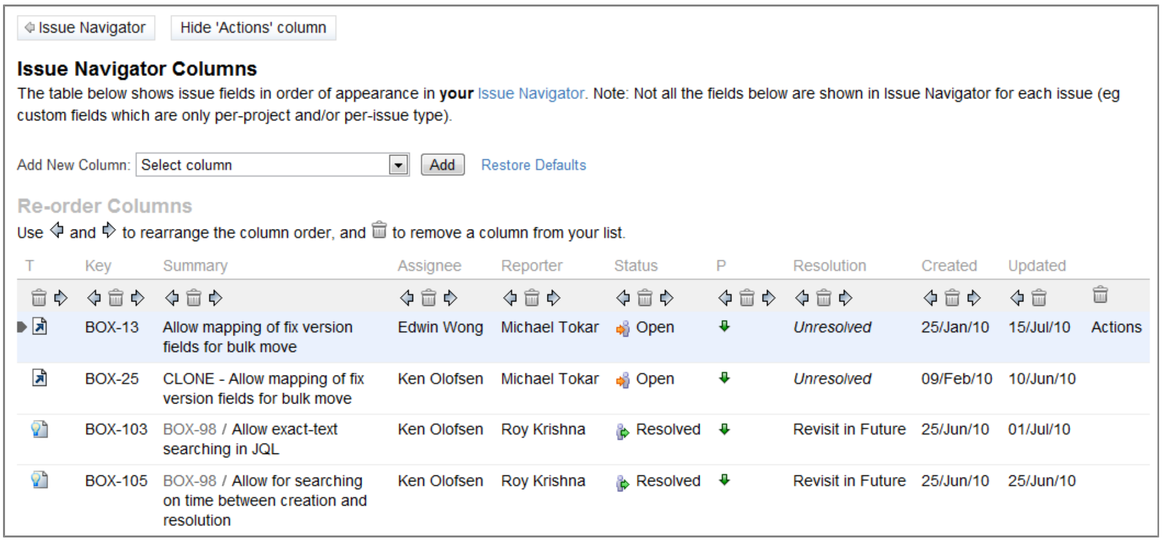
On this page:

- Customising your Issue Navigator columns
- Customising your Issue Navigator rows
- Related Topics

Customising your Issue Navigator columns

To choose which columns (i.e. issue fields) to display in your Issue Navigator,

1. Click the **'Issues'** link in the navigation bar at the top of the screen. The Issue Navigator will be displayed.
2. From the **'Tools'** menu at the right of the screen (above the search results), select **'Configure Columns'.** The following will be displayed:



- **To move a column left or right,** click on the left-arrow or right-arrow icon that appears under the column's heading.
- **To remove a column from the list,** click the bin icon which appears under the column's heading.
- **To add a column to the list,** select the issue field name from the drop-down box titled **'Add New Column'** and click the **'Add'** button. The column will appear as the right-most column in the list. You can then position the column where desired by using the arrow icons.
- **To hide the 'Actions' column,** click the **'Hide Actions Column'** button at the top of the screen.
- **To restore the default configuration,** click the '**Restore Defaults**' link.

Customising your Issue Navigator rows

To choose how many rows (i.e. issues) to display on each page of your Issue Navigator:

1. Click your user name at the top-right of the page to open your User Profile.
2. Click **'Edit Preferences',** under **'Operations'** in the left-hand column of the screen.
3. Enter your preferred **'Number of Issues displayed per Issue Navigator page'**, (The default is 50).
4. Click the **'Update'** button.

Related Topics

- Using the Issue Navigator

Exporting Search Results to Microsoft Word

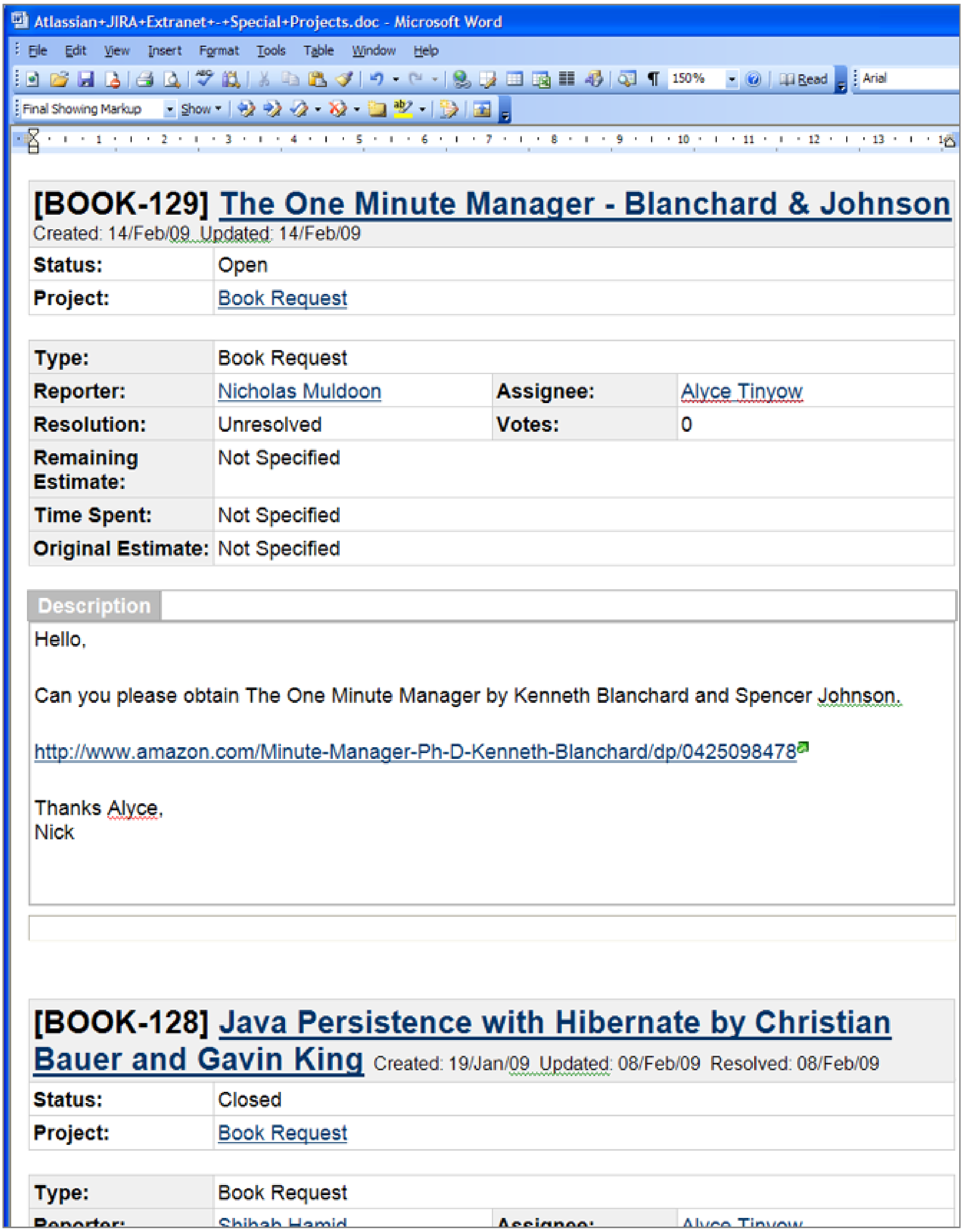
JIRA enables you to easily export your search results from the Issue Navigator to Microsoft Word. This can be a useful way to create reports in your own customised format.

Exporting to Microsoft Word

To export search results to Microsoft Word,

1. On the top navigation bar, click the **'Issues'** tab.
2. Refine your search, as described in *'Searching for Issues',* until the required results are displayed in the Issue Navigator.
   Please note:
   - The export will include Description, Comments and all other issue data, not just the issue fields that are currently configured in your Issue Navigator.
   - Large exports (e.g. hundreds of issues) are not recommended.
3. Click the **'Views'** menu, and select **'Word'**.
4. A file called **'<My company's JIRA> - <My project>.doc'** will be created. Edit this file using Microsoft Word and/or save it as required.

Here is a sample exported file, viewed in Microsoft Word:



Related Topics

- Exporting Search Results to Microsoft Excel

Exporting Search Results to Microsoft Excel

JIRA enables you to easily export your search results from the Issue Navigator to Microsoft Excel. This can be a useful way to format data and create your own customised reports, graphs and charts.

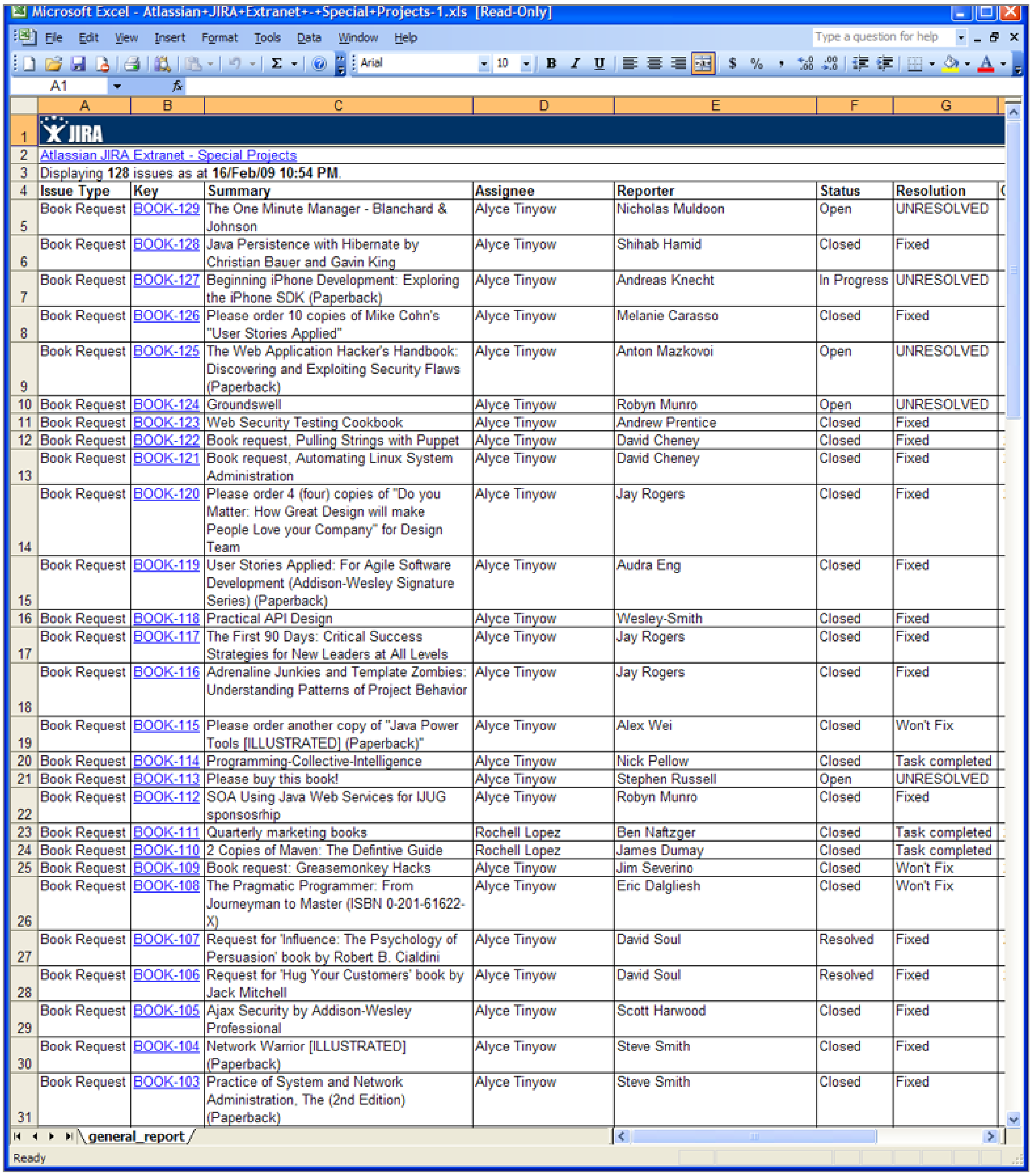
Exporting to Microsoft Excel

1. On the top navigation bar, click the **'Issues'** tab.
2. Refine your search, as described in *'Searching for Issues'*, until the required results are displayed in the Issue Navigator.

> ⚠ Please note:
> - Large exports (e.g. many hundreds of issues) are not recommended.
> - To change the number of issues that are exported, change the value of the **tempMax** parameter in the URL.

3. Click the **'Views'** menu, and select one of the following:
   - **'Excel (All fields)'** — this will create a spreadsheet column for every issue field (excluding comments).
   - **'Excel (Current fields)'** — this will create a spreadsheet column for the issue fields that are currently displayed in your Issue Navigator.
4. A file called **'<My company's JIRA> - <My project>.xls'** will be created. Edit this file using Microsoft Excel and/or save it as required.

Here is a sample exported file, viewed in Microsoft Excel:



Issue Type	Key	Summary	Assignee	Reporter	Status	Resolution
Book Request	BOOK-129	The One Minute Manager - Blanchard & Johnson	Alyce Tinyow	Nicholas Muldoon	Open	UNRESOLVED
Book Request	BOOK-128	Java Persistence with Hibernate by Christian Bauer and Gavin King	Alyce Tinyow	Shihab Hamid	Closed	Fixed
Book Request	BOOK-127	Beginning iPhone Development: Exploring the iPhone SDK (Paperback)	Alyce Tinyow	Andreas Knecht	In Progress	UNRESOLVED
Book Request	BOOK-126	Please order 10 copies of Mike Cohn's "User Stories Applied"	Alyce Tinyow	Melanie Carasso	Closed	Fixed
Book Request	BOOK-125	The Web Application Hacker's Handbook: Discovering and Exploiting Security Flaws (Paperback)	Alyce Tinyow	Anton Mazkovoi	Open	UNRESOLVED
Book Request	BOOK-124	Groundswell	Alyce Tinyow	Robyn Munro	Open	UNRESOLVED
Book Request	BOOK-123	Web Security Testing Cookbook	Alyce Tinyow	Andrew Prentice	Closed	Fixed
Book Request	BOOK-122	Book request, Pulling Strings with Puppet	Alyce Tinyow	David Cheney	Closed	Fixed
Book Request	BOOK-121	Book request, Automating Linux System Administration	Alyce Tinyow	David Cheney	Closed	Fixed
Book Request	BOOK-120	Please order 4 (four) copies of "Do you Matter: How Great Design will make People Love your Company" for Design Team	Alyce Tinyow	Jay Rogers	Closed	Fixed
Book Request	BOOK-119	User Stories Applied: For Agile Software Development (Addison-Wesley Signature Series) (Paperback)	Alyce Tinyow	Audra Eng	Closed	Fixed
Book Request	BOOK-118	Practical API Design	Alyce Tinyow	Wesley-Smith	Closed	Fixed
Book Request	BOOK-117	The First 90 Days: Critical Success Strategies for New Leaders at All Levels	Alyce Tinyow	Jay Rogers	Closed	Fixed
Book Request	BOOK-116	Adrenaline Junkies and Template Zombies: Understanding Patterns of Project Behavior	Alyce Tinyow	Jay Rogers	Closed	Fixed
Book Request	BOOK-115	Please order another copy of "Java Power Tools [ILLUSTRATED] (Paperback)"	Alyce Tinyow	Alex Wei	Closed	Won't Fix
Book Request	BOOK-114	Programming-Collective-Intelligence	Alyce Tinyow	Nick Pellow	Closed	Task completed
Book Request	BOOK-113	Please buy this book!	Alyce Tinyow	Stephen Russell	Open	UNRESOLVED
Book Request	BOOK-112	SOA Using Java Web Services for IJUG sponsosrhip	Alyce Tinyow	Robyn Munro	Closed	Fixed
Book Request	BOOK-111	Quarterly marketing books	Rochell Lopez	Ben Naftzger	Closed	Task completed
Book Request	BOOK-110	2 Copies of Maven: The Defintive Guide	Rochell Lopez	James Dumay	Closed	Task completed
Book Request	BOOK-109	Book request: Greasemonkey Hacks	Alyce Tinyow	Jim Severino	Closed	Won't Fix
Book Request	BOOK-108	The Pragmatic Programmer: From Journeyman to Master (ISBN 0-201-61622-X)	Alyce Tinyow	Eric Dalgliesh	Closed	Won't Fix
Book Request	BOOK-107	Request for 'Influence: The Psychology of Persuasion' book by Robert B. Cialdini	Alyce Tinyow	David Soul	Resolved	Fixed
Book Request	BOOK-106	Request for 'Hug Your Customers' book by Jack Mitchell	Alyce Tinyow	David Soul	Resolved	Fixed
Book Request	BOOK-105	Ajax Security by Addison-Wesley Professional	Alyce Tinyow	Scott Harwood	Closed	Fixed
Book Request	BOOK-104	Network Warrior [ILLUSTRATED] (Paperback)	Alyce Tinyow	Steve Smith	Closed	Fixed
Book Request	BOOK-103	Practice of System and Network Administration, The (2nd Edition) (Paperback)	Alyce Tinyow	Steve Smith	Closed	Fixed

Related Topics

- Exporting Search Results to Microsoft Word

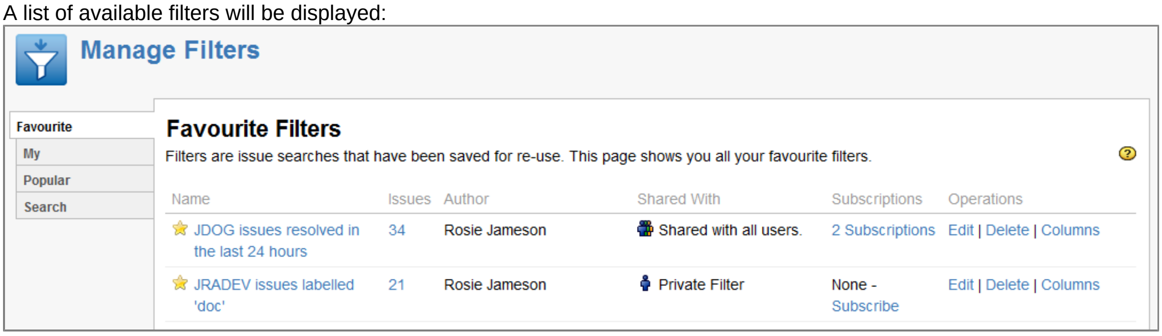
Receiving Search Results via Email

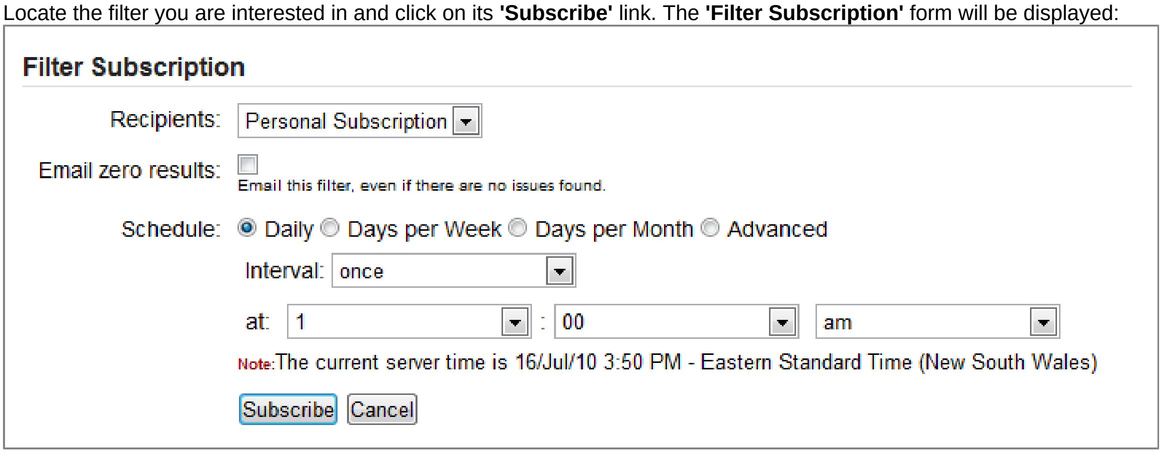
JIRA enables you to *subscribe* to an issue filter (a saved search). JIRA will then run the search according to your specified schedule, and will email the results to you.

You can specify when and how often you would like to receive the search results, e.g. 'Every hour between 9.00AM-5.00PM, Monday-Friday', or 'The last Friday of every month at 7.00AM'.

> Emails can only be sent if your administrator has configured an SMTP mail server.

Subscribing to an Issue Filter

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. A list of available filters will be displayed:


3. Locate the filter you are interested in and click on its **'Subscribe'** link. The **'Filter Subscription'** form will be displayed:


4. In the **'Recipients'** box, either choose 'Personal Subscription' (if you only wish to subscribe yourself), or select a group of recipients from the drop-down list. Note that you cannot select a *group* unless your JIRA administrator has granted you the 'Manage Group Filter Subscriptions' global permission.
5. Select **'Email zero results'** if you would like the email to always be sent, even if there are no search results at that time.
6. Select one of the following types of schedule:
   - **'Daily'** — choose this if you want to receive one or more emails *every day*.
   - **'Days per Week'** — choose this if you want to receive one or more emails on *particular days of every week*.
   - **'Days per Month'** — choose this if you want to receive an email on *a particular day of every month*.
   - **'Advanced'** — see *Advanced scheduling ('cron')* below.
7. Click the '**Subscribe**' button.
8. You will now be shown a subscription summary page. If you wish, you can click **'Run now'** to test your subscription.

Advanced scheduling ('cron')

You can use a **'Cron Expression'** to specify a custom schedule to suit your particular requirements.

Cron expressions consist of the following fields, separated by spaces:

Field	Allowed values	Allowed special characters
Second	0-59	, - * /
Minute	0-59	, - * /
Hour	0-23	, - * /
Day-of-month	1-31	, - * / ? L W C
Month	1-12 or JAN-DEC	, - * /
Day-of-week	1-7 or SUN-SAT	, - * / ? L C #

Year *(optional)*	1970-2099	, - * /

The special characters operate as follows:

Special character	Usage
,	Specifies a list of values. For example, in the **Day-of-week** field, 'MON,WED,FRI' means 'every Monday, Wednesday, and Friday'.
-	Specifies a range of values. For example, in the **Day-of-week** field, 'MON-FRI' means 'every Monday, Tuesday, Wednesday, Thursday and Friday'.
*	Specifies all possible values. For example, in the **Hour** field, '*' means 'every hour of the day'.
/	Specifies increments to the given value. For example, in the **Minute** field, '0/15' means 'every 15 minutes during the hour, starting at minute zero'.
?	Specifies no particular value. This is useful when you need to specify a value for one of the two fields **Day-of-month** or **Day-of-week,** but not the other.
L	Specifies the last possible value; this has different meanings depending on context. In the **Day-of-week** field, 'L' on its own means 'the last day of every week' (i.e. 'every Saturday'), or if used after another value, means 'the last xxx day of the month' (e.g. 'SATL' and '7L' both mean 'the last Saturday of the month). In the **Day-of-month** field, 'L' on its own means 'the last day of the month', or 'LW' means 'the last weekday of the month'.
W	Specifies the weekday (Monday-Friday) nearest the given day of the month. For example, '1W' means 'the nearest weekday to the 1st of the month' (note that if the 1st is a Saturday, the email will be sent on the nearest weekday *within the same month,* i.e. on Monday 3rd). 'W' can only be used when the day-of-month is a single day, not a range or list of days.
#	Specifies the nth occurrence of a given day of the week. For example, 'TUES#2' (or '3#2') means 'the second Tuesday of the month'.

Here are some sample cron expressions:

`0 15 8 ? * *`	Every day at 8.15 pm.
`0 15 8 * * ?`	Every day at 8.15 am.
`0 * 14 * * ?`	Every minute starting at 2.00 pm and ending at 2:59 pm, every day.
`0 0/5 14 * * ?`	Every 5 minutes starting at 2.00 pm and ending at 2:55 pm, every day.
`0 0/5 14,18 * * ?`	Every 5 minutes starting at 2.00 pm and ending at 2:55 pm, AND every 5 minutes starting at 6.00 pm and ending at 6:55 pm, every day.
`0 0-5 14 * * ?`	Every minute starting at 2.00 pm and ending at 2:05 pm, every day.
`0 0/10 * * * ? *`	Every 10 minutes, forever.
`0 10,44 14 ? 3 WED`	2:10 pm and 2:44 pm every Wednesday in the month of March.
`0 15 8 ? * MON-FRI`	8:15 am every Monday, Tuesday, Wednesday, Thursday and Friday.
`0 15 8 15 * ?`	8:15 am on the 15th day of every month.
`0 15 8 L * ?`	8:15 am on the last day of every month.
`0 15 8 LW * ?`	8:15 am on the last weekday of every month.
`0 15 8 ? * 6L`	8:15 am on the last Friday of every month.
`0 15 8 ? * 6#2`	8:15 am on the second Friday of every month.
`0 15 8 ? * 6#2 2007-2009`	8:15 am on the second Friday of every month during the years 2007, 2008 and 2009.

Cron expressions are not case-sensitive.

Displaying Search Results as a Chart

You can view any search results from the Issue Navigator in a variety of charting formats. You can also save them as a **Charting gadget** on your dashboard, as described below.

The **Charts** display visual representations of a filter in a variety of ways. In general, charts are:

- for a period of X days previous to the current date.

- broken down into incremental periods of hours, days, weeks, months, quarters or years.
- hyperlinked to relevant issues in the Issue Navigator.

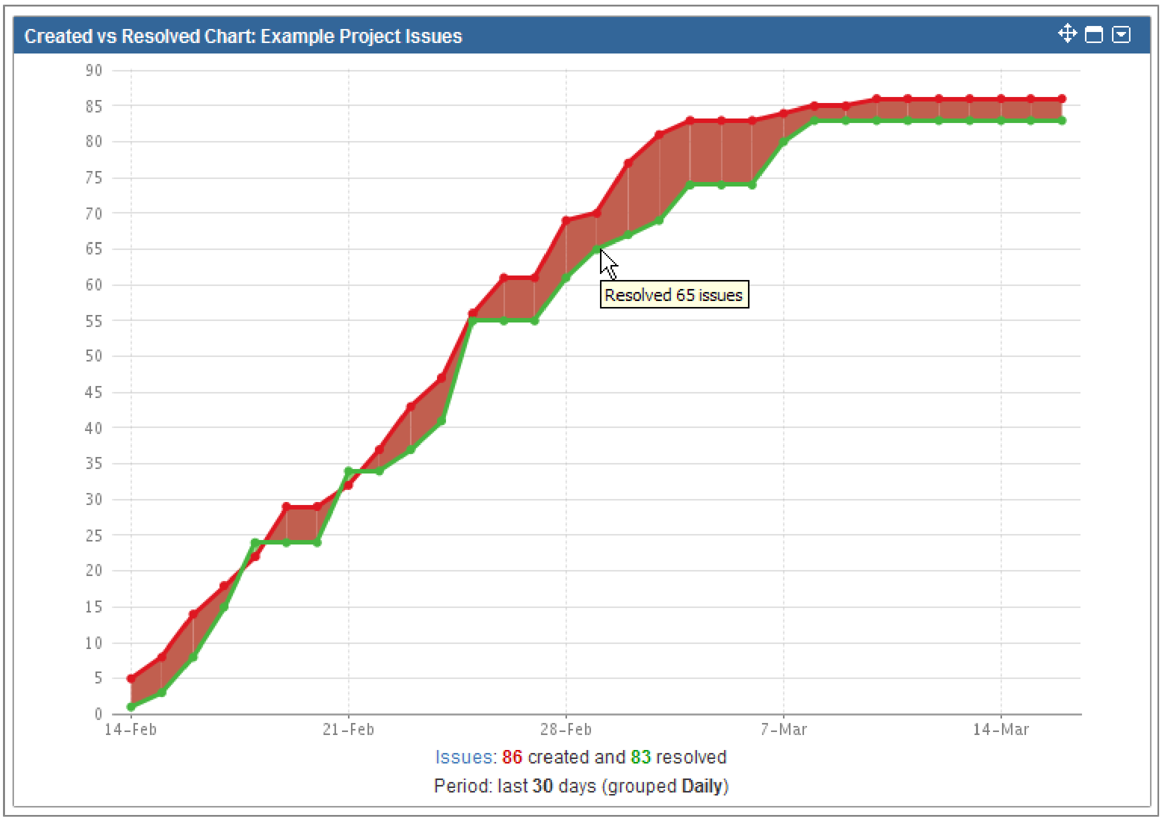
On this page:

- What do they look like?
- Viewing a Chart
- Adding Gadgets to your Dashboard
- Configuring your Internet Explorer cache settings

What do they look like?

The **'Created vs Resolved Issues'** chart, for example, appears as follows:

Screenshot: 'Created vs Resolved Issues' chart



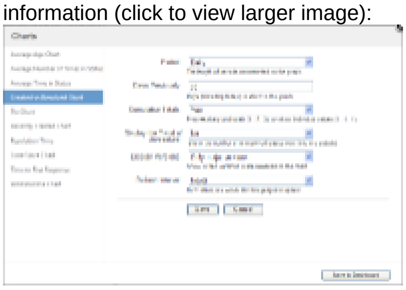
This is just one of the available charting gadgets, which include:

- **'Created vs Resolved Issues'** — a difference chart showing the issues created vs resolved over a given period.
  - This chart can either be cumulative or not.
  - Areas in red show periods where more issues were created than resolved, areas in green show periods where more were resolved than created.
  - Versions can also be added to this chart, showing you how issue creation and resolution related to version releases.
- **'Resolution Time'** — a bar chart showing the average resolution time (in days) of resolved issues.
  - This is useful to show you over time whether your team is getting better or worse at resolving issues in a timely fashion.
- **'Pie Chart'** — displays issues grouped by a statistic type in pie-chart format
  - The issues can be grouped by any statistic type (e.g. Status, Priority, etc.)
- **'Average-Age Open Issues'** — a bar chart showing the average number of days that issues have been unresolved
  - This chart displays the average of how long issues remain open on a specified interval (e.g. daily, weekly, etc.)
- **'Recently Created Issues'** — a bar chart showing the issues recently created.
  - The green portion of the bar shows the created issues which are resolved, the red portion shows created but as yet unresolved issues.
  - This visually shows both how quickly you're creating issues, as well as how many of those created issues are resolved.
- **'Time Since Issues'** — displays a bar chart showing the number of issues for which your chosen date field (e.g. 'Created', 'Updated', 'Due', 'Resolved', or a date custom field) was set on a given date.
- **'Average Time in Status'*** — displays the average number of days issues have spent in a status.
- **'Average Number of Times in Status'** [1] — displays the average number of times an issues has been in a status.
- **'Time to First Response'*** — displays the average number of times an issues has been in a status.

[1] **This particular chart will only be available if your JIRA administrator has installed the Charting plugin.**

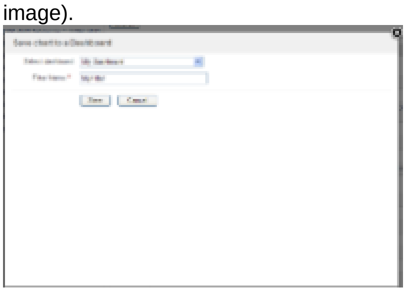
Viewing a Chart

To view your search results as a chart,

1. On the top navigation bar, click on the **'Issues'** tab.
2. Refine your search, as described in *'Searching for Issues'*, until the required results are displayed in the Issue Navigator.
3. Click the **'Views'** menu, and select **'Charts'.**
4. Your search results will be displayed as the default chart. If you wish to select a different type of chart,
   a. Select the desired **'Chart Type'**, as listed in the previous section.
   b. If you wish to edit the chart parameters click the cog icon and click '**Edit**' from the dropdown menu that displays. The configuration form for the chart will display. For example, the **'Created vs Resolved Issues'** chart requires the following information (click to view larger image):
   
   c. Update the chart settings as desired.
   d. Click **'Save'**.

Adding Gadgets to your Dashboard

To create a chart based on your search results and display it on your dashboard (note that this process will also create a saved filter):

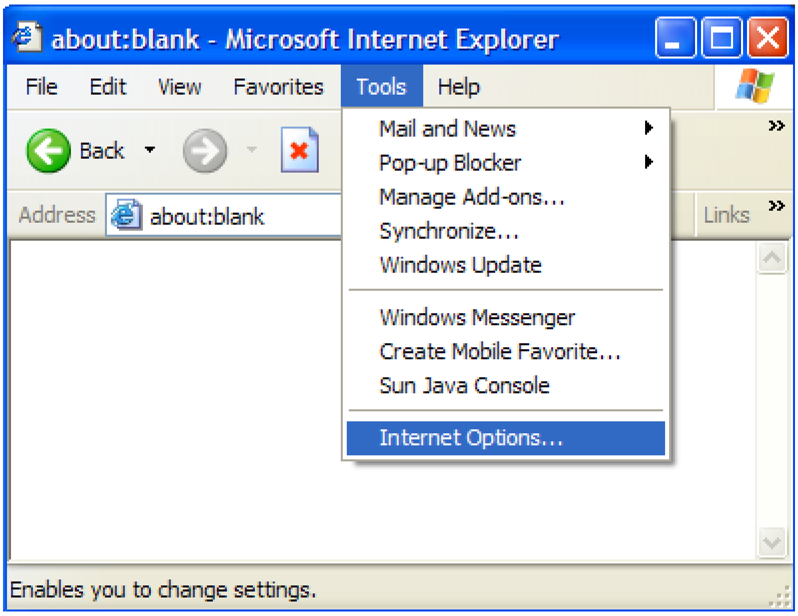
1. View the desired search results in your Issue Navigator.
2. Click the **'Views'** menu, and select **'Charts'.**
3. Your search results will be displayed as the default chart. If you wish to select a different type of chart, you can change the chart and chart settings as described in Viewing a Chart above.
4. Click the '**Save to Dashboard**' button. The 'Save chart to a Dashboard' screen will display as shown below (click to view larger image).
   
5. Select the dashboard to display the chart on in the '**Select dashboard:**' field and type a name for your search results in the **'Filter Name'** field, then click the **'Save'** button. The chart will now appear as a gadget on your dashboard.
6. If you wish, the gadget can be repositioned on the dashboard through the dashboard configuration page.

Further information on all JIRA dashboard gadgets is available in the Using Dashboard Gadgets documentation.

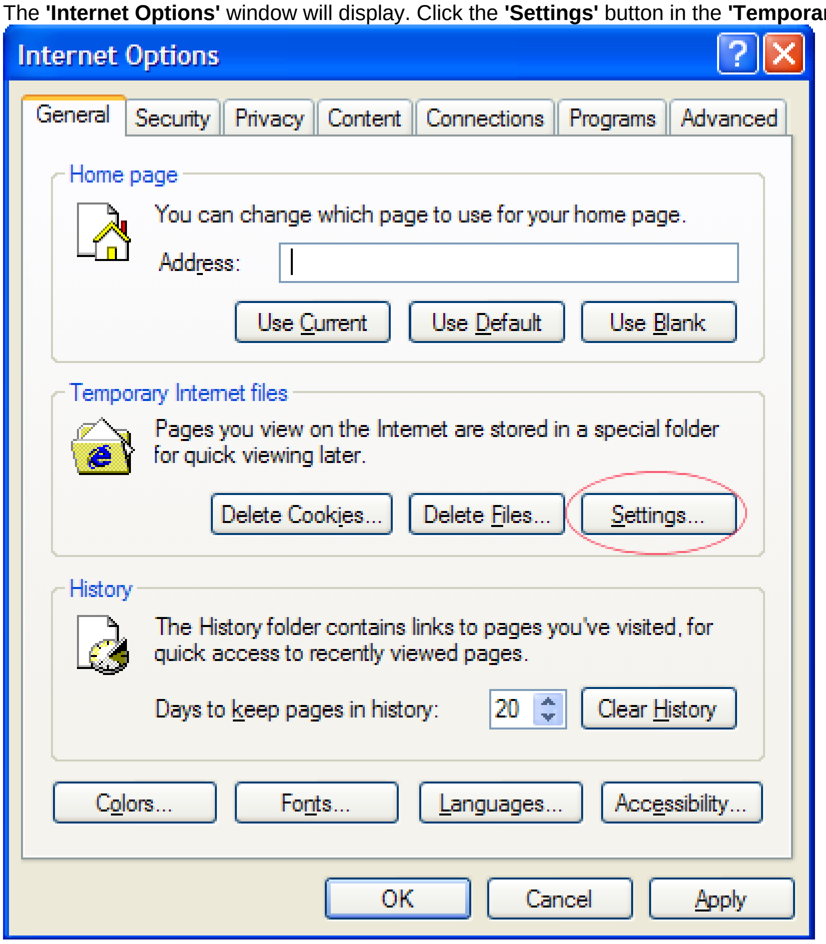
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

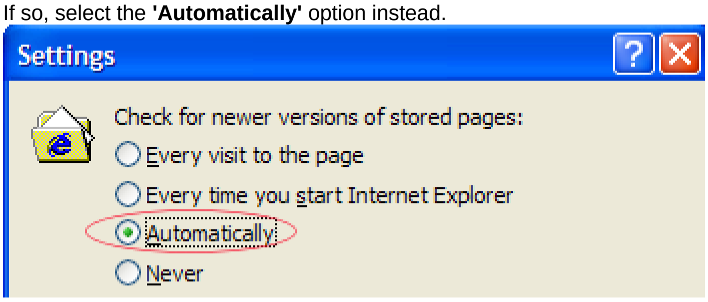
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:

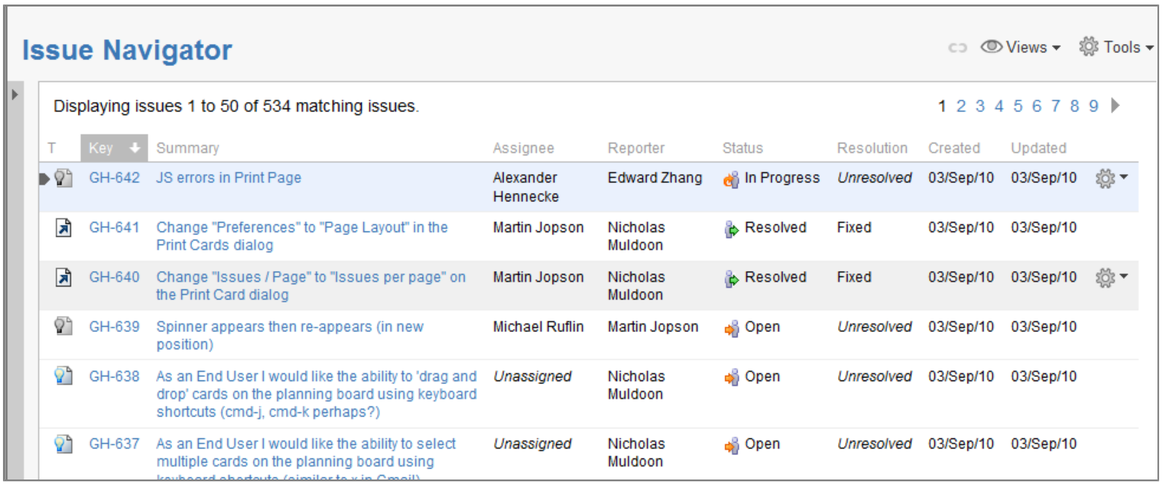


3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Using the Issue Navigator

The Issue Navigator displays the search results from an issue filter, a Quick Search or an Advanced Search, e.g:



The Issue Navigator provides convenient ways to perform many of JIRA's most useful functions. You can:

- Use the 'Actions' icon  menu for a particular issue to quickly perform the following actions:
  - **Start Progress** — Set the issue's Status to **In Progress**.
  - **Resolve issue** — Set the issue's Status to **Resolved** and select the appropriate Resolution.
  - **Close issue** — Set the issue's Status to **Closed** and if the issue has not already been **Resolved**, select the appropriate Resolution.
  - **Reopen issue** — Set a **Resolved** or **Closed** issue's Status to **Reopened**.
  - **Edit** — Edit the issue's details (**Summary, Description,** etc).
  - **Assign** — Select an asignee for the issue.
  - **Assign To Me** — Assign the issue to yourself.
  - **Comment** — Add a comment to the issue.
  - **Log Work** — Record the work done and time spent on the issue. This option is only available if Time Tracking has been activated on your JIRA site.
  - **Attach Files** — Select a file, upload it and attach it to the issue.
  - **Attach Screenshot** — Select a file, upload it and attach it to the issue.
  - **Voters** — Opens the Voters list of the issue, where you can manage your vote and see others who have voted on the issue too.
  - **Add Vote** — Adds your vote to the issue. (This option is only available if you did not create the issue.)
  - **Watch Issue** — Become a watcher of the issue.
  - **Stop Watching** — Stop watching the issue. (This option is only available on issues you are currently watching.)
  - **Watchers** — Opens the Watchers List, where you can manage watchers of the issue.
  - **Create Sub-Task** — Create a new issue which is a sub-task of the issue.
  - **Convert to Issue** — If the issue is a sub-task, convert it to a standalone issue.
  - **Convert to Sub-Task** — If the issue is a standalone issue, convert it to a sub-task.
  - **Move** — Move the issue to a different project.
  - **Link** — Create a link between the issue and another issue. This option is only available if Issue Linking has been enabled on your JIRA site.
  - **Clone** — Create a new issue which is an identical copy of the issue.
  - **Labels** — Edit the issue's labels.
  - **Delete** — Permanently remove the issue.

  > Note that some options in the **Actions** menu will only be available if you have the necessary permissions, or if certain features have been enabled by your JIRA administrator. Options which change an issue's Status (**Resolve issue, Close issue, Reopen issue**) may differ from this list, depending on your organisation's workflow.

- Use the '**Views**' menu to view/export your search results in various formats:
  - **Printable** — All search results on one page, with one row of data per issue. Includes the issue fields that are currently configured in your Issue Navigator.
  - **Full Content** — All search results on one page. Includes **Description, Comments** and all other issue data, not just the issue fields that are currently configured in your Issue Navigator.
  - **XML** — An XML view of issue data, suitable for use with the Confluence JIRA Issues Macro. (Also suitable for use as an RSS 0.9.2 feed). For details, see 'Displaying Search Results in XML'.
  - **RSS (Issues)** — An RSS 2.0 feed of issue data, suitable for displaying in an RSS reader. For details, see 'Receiving Search Results via RSS'.
  - **RSS (Comments)** — An RSS 2.0 feed of comments on the issues, suitable for displaying in an RSS reader. For details, see 'Receiving Search Results via RSS'.
  - **Word** — An MS Word document. Includes **Description, Comments** and all other issue data, not just the issue fields that are currently configured in your Issue Navigator. Can be saved and/or edited. For details, see 'Exporting Search Results to Microsoft Word'.
  - **Excel (All fields)** — An MS Excel spreadsheet. Includes **Description** and all other issue data (excluding comments). Can be saved, or edited to produce graphs and charts; also useful for basic reporting and statistics. For details, see 'Exporting Search Results to Microsoft Excel'.
  - **Excel (Current fields)** — An MS Excel spreadsheet containing the issue fields that are currently configured in your Issue

Navigator. Can be saved, or edited to produce graphs and charts; also useful for basic reporting and statistics. For details, see 'Exporting Search Results to Microsoft Excel'.
- **Charts** — A graphical summary of the search results, which can be saved as a dashboard gadget. For details, see 'Displaying Search Results as a Chart'.
- **On Dashboard** — A gadget on your dashboard. You will be prompted to:
  - select which gadget to use: Filter Results; Average Age Chart; Created vs Resolved Chart; Heat Map; Pie Chart; Recently Created Chart; Resolution Time; or Time Since Chart.
  - name the filter which the search results will be saved as.
  - choose which dashboard the gadget will be saved to, if you have created your own dashboards (if you have not, the gadget will be saved to a new dashboard which will be a copy of the default dashboard).
- Use the '**j**' and '**k**' keys on your keyboard to move between issues on the Issue Navigator. They currently selected issue is depicted by an arrow pointer on the left of the list and any 'Issue Navigator' keyboard shortcuts will be performed on this issue.
- Use the **'Tools'** menu to:
  - **Bulk Change** — You can move, edit or delete multiple issues at once as described in 'Modifying Multiple ('Bulk') Issues'. (Note that this option will only be available if you have been given the necessary permission.)
  - **Configure Columns** — You can add, remove and re-order columns as described in 'Customising your Issue Navigator'.
- Click the **'permalink'** icon to create a permanent URL link to your search results.

The Issue Navigator only displays one set of search results at any one time, even if you have multiple browser windows open. However, you can easily save your searches (see 'issue filters'), then display them as needed.

Re-ordering the search results

When viewing search results in the Issue Navigator, you can re-order the issues by clicking on the column header*. For example, if you click the **'Reporter'** column header, the Issue Navigator will re-display the issues in ascending order of reporter's name. If you click the **'Reporter'** column header a second time, the Issue Navigator will re-display the issues in *descending* order of reporter's name.

- With some exceptions, e.g. the 'Images' column and the sub-task aggregate columns (i.e. all columns beginning with '') are non-orderable.

To choose different fields to display in your Issue Navigator, see Customising your Issue Navigator.

Viewing individual issues

When an issue from a search result set is selected and displayed, a mini-navigator is shown at the right of the issue's title bar:

This mini-navigator indicates the current issue's position within the result set. It also provides linked arrow icons to the previous and next issues in the result set (as shown in the image above), along with a 'Return to search' link that leads you back to the search results. You can also navigate through the search results by using the shortcut keys: 'p' (previous) and 'n' (next).

Accessing protected data

When accessing data generated from JIRA, you may find that access to some resources requires user authentication (i.e. requires you to login). There are three options for this:

1. To enable access to data without logging in, your JIRA administrator may specify the 'Browse' permission for **Anyone.**
2. You can provide the parameters **os_username** and **os_password** in the request URL (e.g. `http://jira.atlassian.com/browse/TST-1?os_username=tester&os_password=tstpassword`). The problem with this method is that it transmits your username and password across the wire in clear text, which may not be an option for some users.
3. You can provide the request parameter **os_authType=basic** (e.g. `http://mycompany.com/anypage?os_authType=basic`). This will force the server to issue a challenge for user credentials (i.e. a login prompt) via the basic http authentication protocol. If you are running over SSL, you still need to specify the **os_authType=basic** parameter if you require the user to authenticate.

Saving Searches ('Issue Filters')

JIRA's powerful issue search functionality is further enhanced by the ability to *save* a search for use at a later time. A saved search is called an **issue filter.**

With an issue filter you can:

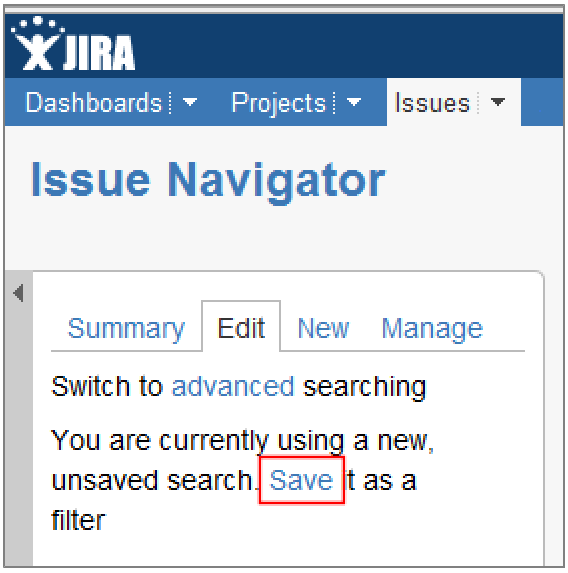
- display the search results in the Issue Navigator, where you can view and export them in various formats (RSS, Excel, etc)
- display the search results in a report format
- display the search results in a dashboard Gadget
- share the search with colleagues (see below)
- add another user's shared filter as a favourite (see below)
- have the search results emailed to you according to your preferred schedule

On this page:

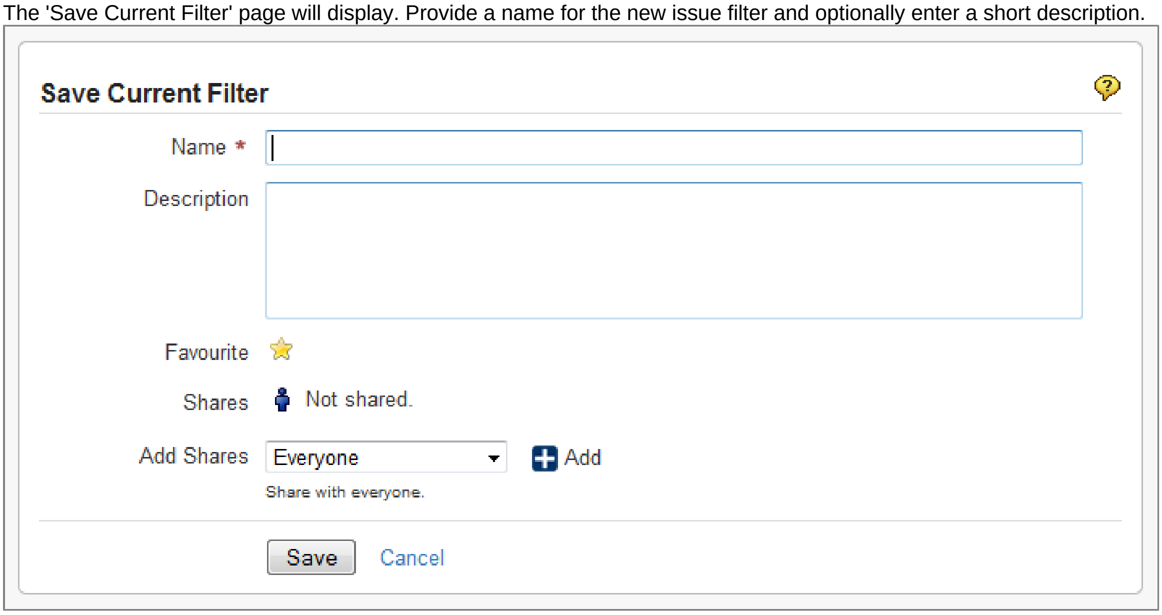
- Saving a search as an Issue Filter
- Managing your Issue Filters
  - Adding an Issue Filter as a Favourite
  - Sharing an existing Issue Filter
  - Searching for an existing Issue Filter
  - Updating an existing Issue Filter's details
  - Editing/Cloning an existing Issue Filter
  - Defining filter-specific Issue Navigator Column Order
    - Adding a Column Order
    - Removing Column Order
    - Overriding Column Order
    - Exporting Column Ordered Issues
- Additional Resources

Saving a search as an Issue Filter

1. Refine and run your search as described in 'Searching for Issues'.
2. Click the '**Save** it as a filter' link in the left-hand column of the Issue Navigator.



3. The 'Save Current Filter' page will display. Provide a name for the new issue filter and optionally enter a short description.



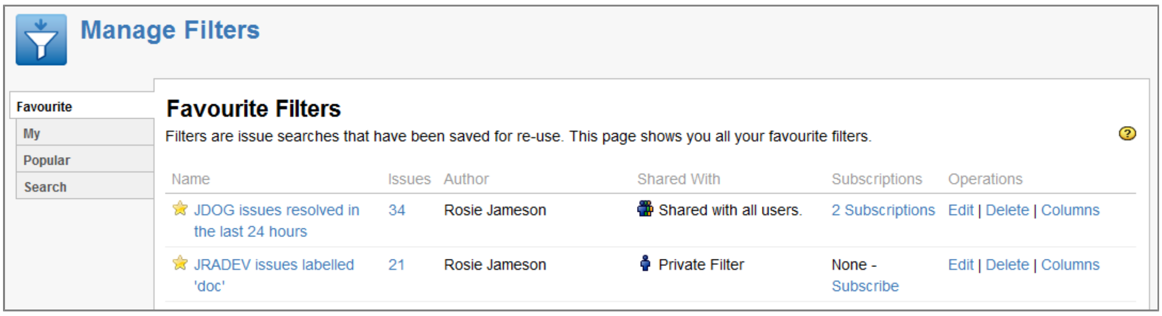
4. Your new filter will be added as a favourite filter by default upon creation. If you do not wish this filter to be added as a favourite, deselect the star icon. You can add the filter as a favourite after it has been created. Read more about adding an existing filter as a Favourite.
5. The sharing of your new filter is defaulted, depending on your sharing preference in your user profile. If you have not specified a personal preference, then the global default for sharing will apply (i.e. 'Private', unless changed by your JIRA Administrator under 'User Defaults' in the Administration menu). If you wish to change the sharing of your filter, refer to the instructions on sharing filters below.

Please note, you need the 'Create Shared Object' global permission to be able to share your filter. If you cannot see the 'Shares' fields, contact your JIRA Administrator to have this permission added to your profile.

Managing your Issue Filters

The '**Manage Filters**' page allows you to view and configure filters that you have created, as well as work with filters that other users have shared with you.

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. The 'Manage Filters' page will display. From this page, you can perform the functions listed below:
   - Create a new search to be saved as a filter.
   - Add a filter as a favourite.
   - Share a filter that you have created with other users.
   - Search for filters that has been created by you or shared with you by other users.
   - Update an existing filter's details or edit a filter's search criteria for a filter that you have created.

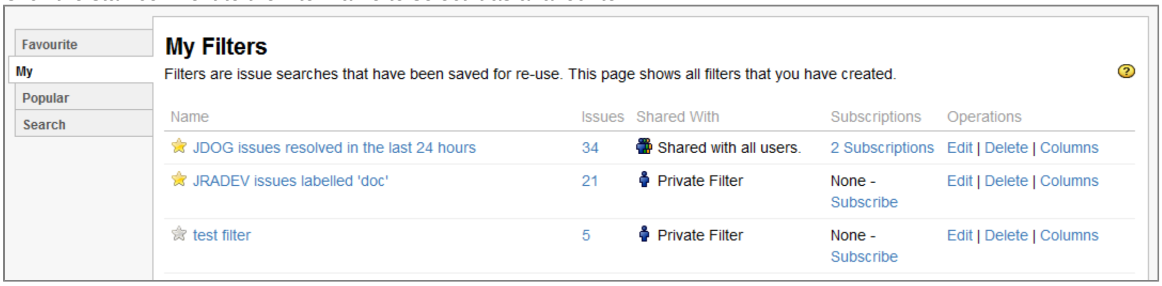


Adding an Issue Filter as a Favourite

Issue filters that you created or that have been shared by other people can be added as a favourite filter. This means that the filter will appear in the 'Filters' dropdown in the top menu, as well as, display in the 'Favourite Filters' gadget on your dashboard (if you have this gadget added to your dashboard).

Follow the steps below to add an existing shared filter as a favourite:

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. Locate the filter you wish to add as a favourite. If you created the filter, it will be listed under the 'My' tab, otherwise you can search for filters shared by other users via the 'Search' tab.
   - Filters that are already favourites are shown with a yellow star.
   - Filters that are not currently your favourites are shown with a grey star.
3. Click the star icon next to the filter name to select it as a favourite.

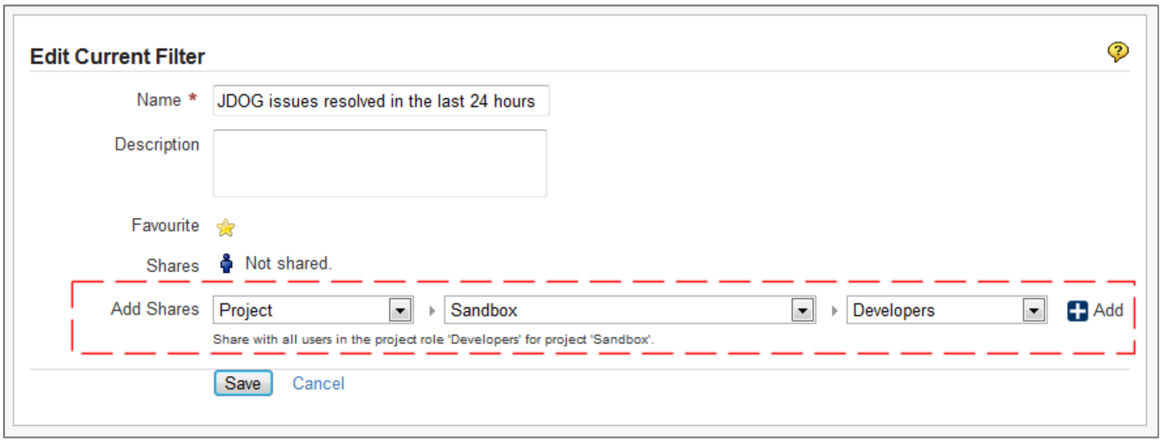


Sharing an existing Issue Filter

Issue filters that you have created can be shared with other users via user groups, projects and project roles. Issue filters can also be shared globally.

Follow the steps below to share an existing issue filter:

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. Locate the filter you wish to share under the '**My**' tab, and click the '**Edit**' link in the '**Operations**' column.
3. Select the group, project or project role that you want to share the filter with, or share it with all users, if you wish. Click the '**Add**' link to add the share. You can add further share permissions if you wish.
   Note that you can only share filters with groups/roles of which you are a member.



4. Click '**Save**' to save your changes.

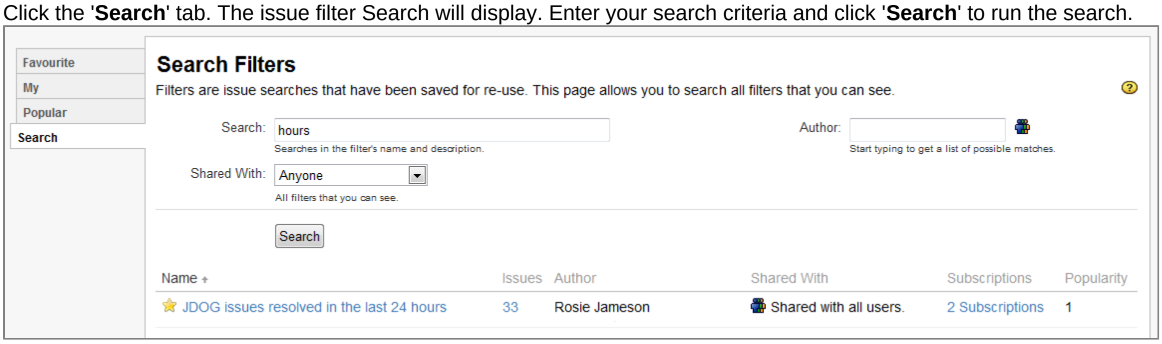
> If the filter sharing functions described above are not available to you, you probably do not have the 'Create Shared Object' global permission assigned to you. Please contact your JIRA administrator to obtain this permission.

Searching for an existing Issue Filter

Issue filters that you have created or have been shared by other users can be found via the issue filter search function of the 'Manage Filters' page. If the filter has been added as a favourite by many users, you also may be able locate it on the 'Popular' tab of the 'Manage Filters' page. This tab lists the top twenty most popular filters, counted by the number of users that have selected the filter as a favourite.

Follow the steps below to search for an existing issue filter:

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. Click the '**Search**' tab. The issue filter Search will display. Enter your search criteria and click '**Search**' to run the search.



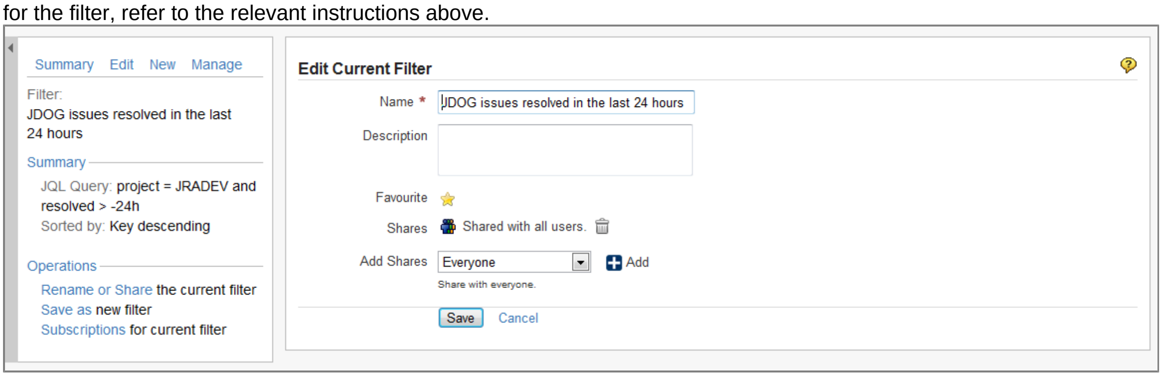
3. Your search results will be displayed on the same page. Click the name of any issue filter to run it and select it as your current filter. You can also sort the search results by any of the columns, by clicking the column headers.

Updating an existing Issue Filter's details

You can always update the details, i.e. Name, Description, Sharing, Favourite, of an existing Issue Filter after its creation. Please note that you can only update the details of Issue Filters which you have created.

Follow the steps below to update the details of one of your existing issue filters:

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. Click the '**My**' tab. This tab displays all the filters that have been created by you.
3. Locate the filter you wish to update, and click the '**Edit**' link in the 'Operations' column.
4. The 'Save Current Filter' page will display. Update the filter details as required. If you wish to change the sharing or favourite settings for the filter, refer to the relevant instructions above.



5. Click the '**Save**' button to save your changes.

> If the filter sharing functions described above are not available to you, you probably do not have the 'Create Shared Object' global permission assigned to you. Please contact your JIRA administrator to obtain this permission.

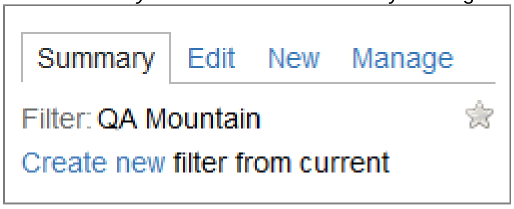
Editing/Cloning an existing Issue Filter

The search criteria of an existing issue filter can always be changed after creation by editing the issue filter. You can also clone an existing issue filter via the edit function.

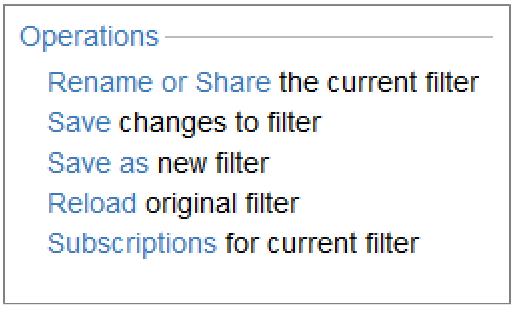
Issue filters that have been created by you or shared with you by other users can be edited and/or cloned.

Follow the steps below to edit and/or clone an existing issue filter:

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. Locate the filter you wish to edit/clone, and click the name of the issue filter to run it and select it as your current filter.
    - If the current filter *was not created by you* (that is, the filter is shared by another user), you will only have the option to save the search as *your own* new issue filter by clicking the '**Create new** filter from current' link.

        a. Follow the Saving a search to an Issue Filter procedure (above) from step 3 for details on saving your new filter.
        b. After creating your new filter, you can follow the steps below to modify the filter's search criteria.
    - If the current filter *was created by you*, the following options are available:
        - To clone the current filter with a new name (without modification to the filter's search criteria), ensure that the '**View**' link has been selected. Once the search results have displayed in the Issue Navigator on the right hand side of the page, click '**Save as** new filter' to clone the current filter with a new name and description.
        - To change the name, description and sharing criteria of the current filter, click '**Rename or Share** the current filter'.
        - To edit the current filter's search criteria, such as updating which fields are searched or the search terms themselves and save it:
            a. Click the '**Edit**' link at the top of the left hand menu. The left hand menu will refresh and the search criteria of the filter will display.
            b. Modify the search criteria as required.
            c. If you modified your search criteria in '**simple** searching' mode, click the '**View & Hide**' button. The filter operations will be displayed on the left hand side of the page.
            d. To save the modified search as a new issue filter, click the '**Save as** new filter' link.
            e. To overwrite the current filter with the modified search criteria, click the '**Save** changes to filter' link.

Defining filter-specific Issue Navigator Column Order

You can add an Issue Navigator Column Order to a saved filter. The results of a filter are displayed according to the saved column order, if the filter has one. Otherwise, the results are displayed according to your personal column order (if you have set this) or the system default.

> To display your configured column order in a filter subscription, you must select 'HTML' for the 'Outgoing email format' in your User Profile. If you are receiving text emails from JIRA, you will not be able to see your configured column order.

Adding a Column Order

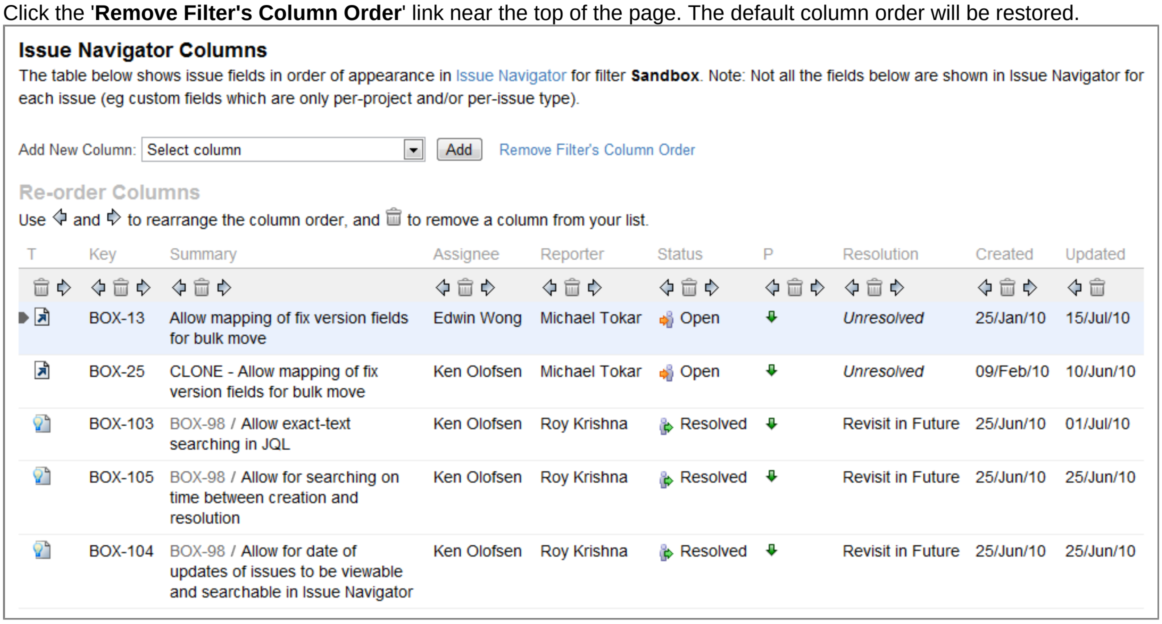
To add a column layout to a saved filter,

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. Select the '**My**' tab, locate the filter whose column layout you to reorder and save, and then click that filter's '**Columns**' link in the ' **Operations**' column.
3. Configure the column order as desired. You can configure the column order the same way you would configure your personal Issue Navigator column order.

Removing Column Order

To remove a filter's saved column layout,

1. On the top navigation bar, click the '**Issues**' dropdown and select '**Manage Filters**' from the list.
2. Select the '**My**' tab, locate the filter whose column layout you wish to remove and click that filter's '**Columns**' link in the '**Operations**' column.
3. Click the '**Remove Filter's Column Order**' link near the top of the page. The default column order will be restored.



Overriding Column Order

If a filter has a saved column order, the results will be presented using that column order when the filter is run. You can, however, choose to use your own column order (or the system default column order, if you do not have a personal one configured) to view the results. To do this, click the '**Use your default Column Order**' link on the right of the Issue Navigator search results screen.

To go back to using the filter's own column order, select the '**Use filter's Column Order**' link.

Exporting Column Ordered Issues

When the results of a saved filter are exported to Excel, the column order and choice of columns are those that were saved with the filter. Even if a user has configured a personal column order for the results on the screen, the **saved configuration** is used for the Excel export. To export using your own configuration, save a copy of the filter along with your configuration and then export the results to Excel.

Additional Resources

- Creating SLA issue filters tutorial video — Watch this short tutorial video to see how to create an issue filter to support an SLA (service level agreement). Please note the JIRA version of the tutorial video before watching.

Performing Text Searches

This page provides information on how to perform text searches. It applies to both simple searches and advanced searches (when used with the CONTAINS operator).

Note that this page does not apply to Quick Search.

Acknowledgements:
JIRA uses Lucene for text indexing. Lucene provides a rich query language; thanks to Jakarta and the Lucene team for such a great component. Most of the information on this page is derived from the Lucene document on Query Parser Syntax.

On this page:

- Query Terms
- Term Modifiers
  - Wildcard Searches: ? and *
  - Fuzzy Searches: ~
  - Proximity Searches
- Boosting a Term: ^
- Boolean Operators
  - OR
  - AND
  - Required term: +
  - NOT
  - Excluded term: -
- Grouping
- Escaping Special Characters: \
- Reserved Words
- Limitations
  - Whole words only

Query Terms

A query is broken up into **terms** and **operators.** There are two types of terms: **Single Terms** and **Phrases.**

A **Single Term** is a single word such as "`test`" or "`hello`".

A **Phrase** is a group of words surrounded by double quotes such as "`hello dolly`".

Multiple terms can be combined together with Boolean operators to form a more complex query (see below).

Note: All query terms in JIRA are case insensitive.

Term Modifiers

JIRA supports modifying query terms to provide a wide range of searching options.

*Wildcard Searches: ? and **

JIRA supports single and multiple character wildcard searches.

To perform a single character wildcard search use the "?" symbol.

To perform a multiple character wildcard search use the "`*`" symbol.

Wildcard characters need to be enclosed in quote-marks, as they are reserved characters in advanced search. Use quotations, e.g. `summary ~ "cha?k and che*"`

The single character wildcard search looks for terms that match that with the single character replaced. For example, to search for "`text`" or "`test`" you can use the search:

```
te?t
```

Multiple character wildcard searches looks for 0 or more characters. For example, to search for `Windows`, `Win95` or `WindowsNT` you can use the search:

```
win*
```

You can also use the wildcard searches in the middle of a term. For example, to search for `Win95` or `Windows95` you can use the search

```
wi*95
```

You cannot use a * or ? symbol as the first character of a search.

Fuzzy Searches: ~

JIRA supports fuzzy searches. To do a fuzzy search use the tilde, "~", symbol at the end of a Single word Term. For example to search for a term similar in spelling to "`roam`" use the fuzzy search:

```
roam~
```

This search will find terms like foam and roams.

Note: Terms found by the fuzzy search will automatically get a boost factor of 0.2

Proximity Searches

JIRA supports finding words are a within a specific distance away. To do a proximity search use the tilde, "~", symbol at the end of a Phrase. For example to search for a "`atlassian`" and "`jira`" within 10 words of each other in a document use the search:

```
"atlassian jira"~10
```

Boosting a Term: ^

JIRA provides the relevance level of matching documents based on the terms found. To boost a term use the caret, "^", symbol with a boost factor (a number) at the end of the term you are searching. The higher the boost factor, the more relevant the term will be.

Boosting allows you to control the relevance of a document by boosting its term. For example, if you are searching for

```
atlassian jira
```

and you want the term "`atlassian`" to be more relevant boost it using the ^ symbol along with the boost factor next to the term. You would type:

```
atlassian^4 jira
```

This will make documents with the term atlassian appear more relevant. You can also boost Phrase Terms as in the example:

```
"atlassian jira"^4 querying
```

By default, the boost factor is 1. Although, the boost factor must be positive, it can be less than 1 (i.e. .2)

Boolean Operators

Boolean operators allow terms to be combined through logic operators. JIRA supports AND, "+", OR, NOT and "-" as Boolean operators.

Boolean operators must be ALL CAPS.

OR

The OR operator is the default conjunction operator. This means that if there is no Boolean operator between two terms, the OR operator is used. The OR operator links two terms and finds a matching document if either of the terms exist in a document. This is equivalent to a union using sets. The symbol `||` can be used in place of the word OR.

To search for documents that contain either "`atlassian jira`" or just "`jira`" use the query:

```
"atlassian jira" || jira
```

or

```
"atlassian jira" OR jira
```

AND

The AND operator matches documents where both terms exist anywhere in the text of a single document. This is equivalent to an intersection using sets. The symbol && can be used in place of the word AND.

To search for documents that contain "`atlassian jira`" and "`issue tracking`" use the query:

```
"atlassian jira" AND "issue tracking"
```

Required term: +

The "" or required operator requires that the term after the "" symbol exist somewhere in a the field of a single document.

To search for documents that must contain "`jira`" and may contain "`atlassian`" use the query:

```
+jira atlassian
```

NOT

The NOT operator excludes documents that contain the term after NOT. This is equivalent to a difference using sets. The symbol `!` can be used in place of the word NOT.

To search for documents that contain "`atlassian jira`" but not "`japan`" use the query:

```
"atlassian jira" NOT "japan"
```

Note: The NOT operator cannot be used with just one term. For example, the following search will return no results:

```
NOT "atlassian jira"
```

Usage of the **NOT** operator over multiple fields may return results that include the specified excluded term. This is due to the fact that the search query is executed over each field in turn and the result set for each field is combined to form the final result set. Hence, an issue that matches the search query based on one field, but fails based on another field, will be included in the search result set.

Excluded term: -

The "`-`" or prohibit operator excludes documents that contain the term after the "`-`" symbol.

To search for documents that contain "`atlassian jira`" but not "`japan`" use the query:

```
"atlassian jira" -japan
```

Grouping

JIRA supports using parentheses to group clauses to form sub queries. This can be very useful if you want to control the boolean logic for a query.

To search for either "`atlassian`" or "`jira`" and "`bugs`" use the query:

```
bugs AND (atlassian OR jira)
```

This eliminates any confusion and makes sure you that `bugs` must exist and either term `atlassian` or `jira` may exist.

Do not use the grouping character '(' at the start of a search query, as this will result in an error. For example, "(atlassian OR jira) AND bugs" will not work.

Escaping Special Characters: \

JIRA supports escaping special characters that are part of the query syntax. The current list of special characters is:

```
+ - && || ! ( ) { } [ ] ^ ~ * ? \
```

To escape these characters, use the \ before the character. For example, to search for (1+1) use the query:

```
\(1\+1\)
```

Please note: the syntax for escaping special characters is different if you are using Advanced Searching — please see Reserved Characters
.

Reserved Words

Certain *common words* are ignored from the search and search index.

Note that this can sometimes lead to unexpected results. For example, suppose one issue contains the words "VSX will crash" and another issue contains the words "VSX will not crash". A phrase search for "VSX will crash" will return both of the issues. This is because the words `will` and `not` are part of the reserved words list.

The full list of reserved English words is:

```
"a", "and", "are", "as", "at", "be", "but", "by", "for", "if", "in", "into", "is", "it", "no", "not",
"of", "on", "or", "s", "such", "t", "that", "the", "their", "then", "there", "these", "they", "this",
"to", "was", "will", "with"
```

Note that your JIRA Administrator can alter the behavior of JIRA in relation to these reserved words by changing the **Indexing Language** from "English" to "Other" under Administration > General Configuration.

Limitations

Please note that the following limitations of Lucene apply to JIRA:

Whole words only

You cannot search on word parts, only on whole words.

Advanced Searching

On this page:

- What is an Advanced Search?
- How to Perform an Advanced Search
  - Keywords Reference
  - Operators Reference
  - Fields Reference
  - Functions Reference
  - Setting Precedence of Operators
  - Performing Text Searches
  - Using Auto-complete
  - Switching between 'Advanced' and 'Simple' Search
  - Reserved Characters
  - Reserved Words

What is an Advanced Search?

An advanced search allows you to use structured queries to search for JIRA issues. Your search results will be displayed in the Issue Navigator, where you can export them to MS Excel and many other formats. You can also save and subscribe to your advanced searches if you wish.

A query consists of a *field*, followed by an *operator*, followed by a *value* or *function*. For example, the following query will find all issues in the "TEST" project:

```
project = "TEST"
```

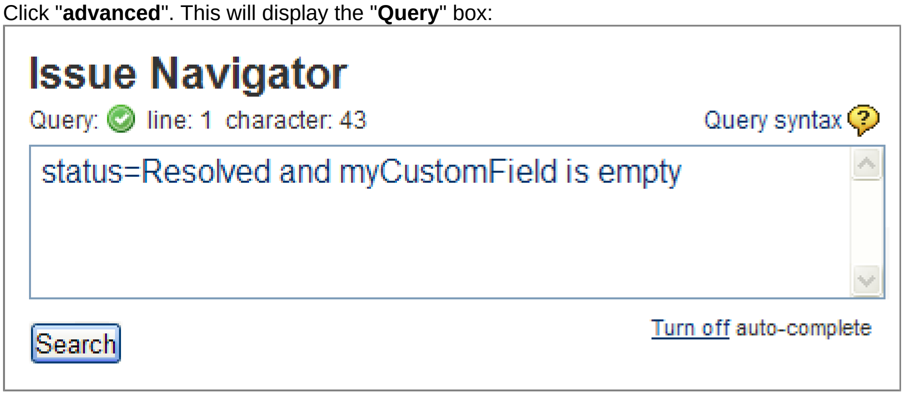
(This example uses the Project *field*, the EQUALS *operator*, and the *value* `"TEST"`.)

Note that it is not possible to compare two fields.

When you perform an advanced search, you are using the JIRA Query Language (JQL). JQL gives you some SQL-like statements, such as > and NULL. It is not, however, a database query language; for example, JQL does not have a `SELECT` statement.

How to Perform an Advanced Search

1. On the top navigation bar, click the "**Issues**" tab. This will display the Search panel.
2. Click "**advanced**". This will display the "**Query**" box:



3. Type your query using the fields, operators and field values or functions listed below.
4. Click the "**Search**" button to run your query.

Keywords Reference

- AND
- OR
- NOT
- EMPTY
- NULL
- ORDER BY

AND

Used to combine multiple statements, allowing you to refine your search.

Note that you can use parentheses to control the order in which statements are executed.

Examples

- Find all open issues in the "New office" project:

```
project = "New office" and status = "open"
```

- Find all open, urgent issues that are assigned to jsmith:

```
status = open and priority = urgent and assignee = jsmith
```

- Find all issues in a particular project that are not assigned to jsmith:

```
project = JRA and assignee != jsmith
```

- Find all issues for a specific release which consists of different version numbers across several projects:

```
project in (JRA,CONF) and fixVersion = "3.14"
```

- Find all issues where neither the Reporter nor the Assignee is Jack, Jill or John:

```
reporter not in (Jack,Jill,John) and assignee not in (Jack,Jill,John)
```

OR

Used to combine multiple statements, allowing you to expand your search.

Note that you can use parentheses to control the order in which statements are executed.

(Note: also see IN, which can be a more convenient way to search for multiple values of a field.)

Examples

- Find all issues that were created by either jsmith or jbrown:

```
reporter = jsmith or reporter = jbrown
```

- Find all issues that are overdue or where no due date is set:

```
duedate < now() or duedate is empty
```

NOT

Used to negate individual operators or entire statements of a query, allowing you to refine your search.

Note that you can use parentheses to control the order in which statements are executed.

(Note: also see NOT_EQUALS ("!="), DOES_NOT_CONTAIN ("!~"), NOT_IN and IS_NOT.)

Examples

- Find all issues that are assigned to any user except jsmith:

```
not assignee = jsmith
```

- Find all issues that were not created by either jsmith or jbrown:

```
not (reporter = jsmith or reporter = jbrown)
```

EMPTY

Used to search for issues where a given field does not have a value. See also NULL.

Note that EMPTY can only be used with fields that support the IS and IS_NOT operators. To see a field's supported operators, check the individual field reference.

Examples

- Find all issues without a DueDate:

```
duedate = empty
```

or

```
duedate is empty
```

NULL

Used to search for issues where a given field does not have a value. See also EMPTY.

Note that NULL can only be used with fields that support the IS and IS_NOT operators. To see a field's supported operators, check the individual field reference.

Examples

- Find all issues without a DueDate:

```
duedate = null
```

or

```
duedate is null
```

ORDER BY

Used to specify the fields by whose values the search results will be sorted.

By default, the field's own sorting order will be used. You can override this by specifying ascending order ("`asc`") or descending order ("`desc`").

Examples

- Find all issues without a DueDate, sorted by CreationDate:

```
duedate = empty order by created
```

- Find all issues without a DueDate, sorted by CreationDate, then by Priority (highest to lowest):

```
duedate = empty order by created, priority desc
```

- Find all issues without a DueDate, sorted by CreationDate, then by Priority (lowest to highest):

```
duedate = empty order by created, priority asc
```

Operators Reference

- EQUALS: =
- NOT EQUALS: !=
- GREATER THAN: >
- GREATER THAN EQUALS: >=
- LESS THAN: <
- LESS THAN EQUALS: <=
- IN
- NOT IN
- CONTAINS: ~
- DOES NOT CONTAIN: !~
- IS
- IS NOT
- WAS
- WAS IN
- WAS NOT IN
- WAS NOT

EQUALS: =

The "=" operator is used to search for issues where the value of the specified field exactly matches the specified value. (Note: cannot be used with text fields; see the CONTAINS operator instead.)

To find issues where the value of a specified field exactly matches *multiple* values, use multiple "=" statements with the AND operator.

Examples

- Find all issues that were created by jsmith:

```
reporter = jsmith
```

- Find all issues that were created by John Smith:

```
reporter = "John Smith"
```

NOT EQUALS: !=

The "`!=`" operator is used to search for issues where the value of the specified field does not match the specified value. (Note: cannot be used with text fields; see the DOES_NOT_MATCH ("`!~`") operator instead.)

Note that typing `field != value` is the same as typing `NOT field = value`, and that `field != EMPTY` is the same as `field IS_NOT EMPTY`.

The "`!=`" operator will not match a field that has no value (i.e. a field that is empty). For example, `component != fred` will only match issues that have a component **and** the component is not "fred". To find issues that have a component other than "fred" **or have no component**, you would need to type: `component != fred or component is empty`.

Examples

- Find all issues that are assigned to any user except jsmith:

```
not assignee = jsmith
```

  or:

```
assignee != jsmith
```

- Find all issues that are not assigned to jsmith:

```
assignee != jsmith or assignee is empty
```

- Find all issues that were reported by me but are not assigned to me:

```
reporter = currentUser() and assignee != currentUser()
```

- Find all issues where the Reporter or Assignee is anyone except John Smith:

```
assignee != "John Smith" or reporter != "John Smith"
```

- Find all issues that are not unassigned:

```
assignee is not empty
```

  or

```
assignee != null
```

GREATER THAN: >

The ">" operator is used to search for issues where the value of the specified field is greater than the specified value. Cannot be used with text fields.

Note that the ">" operator can only be used with fields which support ordering (e.g. date fields and version fields). To see a field's supported operators, check the individual field reference.

Examples

- Find all issues with more than 4 votes:

```
votes > 4
```

- Find all overdue issues:

```
duedate < now() and resolution is empty
```

- Find all issues where priority is higher than "Normal":

```
priority > normal
```

GREATER THAN EQUALS: >=

The ">=" operator is used to search for issues where the value of the specified field is greater than or equal to the specified value. Cannot be used with text fields.

Note that the ">=" operator can only be used with fields which support ordering (e.g. date fields and version fields). To see a field's supported operators, check the individual field reference.

Examples

- Find all issues with 4 or more votes:

```
votes >= 4
```

- Find all issues due on or after 31/12/2008:

```
duedate >= "2008/12/31"
```

- Find all issues created in the last five days:

```
created >= "-5d"
```

LESS THAN: <

The "<" operator is used to search for issues where the value of the specified field is less than the specified value. Cannot be used with text fields.

Note that the "<" operator can only be used with fields which support ordering (e.g. date fields and version fields). To see a field's supported operators, check the individual field reference.

Examples

- Find all issues with less than 4 votes:

```
votes < 4
```

LESS THAN EQUALS: <=

The "<=" operator is used to search for issues where the value of the specified field is less than or equal to than the specified value. Cannot be used with text fields.

Note that the "<=" operator can only be used with fields which support ordering (e.g. date fields and version fields). To see a field's supported operators, check the individual field reference.

Examples

- Find all issues with 4 or fewer votes:

```
votes <= 4
```

- Find all issues that have not been updated in the past month (30 days):

```
updated <= "-4w 2d"
```

IN

The "`IN`" operator is used to search for issues where the value of the specified field is one of multiple specified values. The values are specified as a comma-delimited list, surrounded by parentheses.

Using "`IN`" is equivalent to using multiple `EQUALS (=)` statements, but is shorter and more convenient. That is, typing `reporter IN (tom, jane, harry)` is the same as typing `reporter = "tom" OR reporter = "jane" OR reporter = "harry"`.

Examples

- Find all issues that were created by either jsmith or jbrown or jjones:

```
reporter in (jsmith,jbrown,jjones)
```

- Find all issues where the Reporter or Assignee is either Jack or Jill:

```
reporter in (Jack,Jill) or assignee in (Jack,Jill)
```

- Find all issues in version 3.14 or version 4.2:

```
affectedVersion in ("3.14", "4.2")
```

NOT IN

The "`NOT IN`" operator is used to search for issues where the value of the specified field is not one of multiple specified values.

Using "`NOT IN`" is equivalent to using multiple `NOT_EQUALS (!=)` statements, but is shorter and more convenient. That is, typing `reporter NOT IN (tom, jane, harry)` is the same as typing `reporter != "tom" AND reporter != "jane" AND reporter != "harry"`.

The "`NOT IN`" operator will not match a field that has no value (i.e. a field that is empty). For example, `assignee not in (jack,jill)` will only match issues that have an assignee **and** the assignee is not "jack" or "jill". To find issues that are assigned to someone other than "jack" or "jill" **or are unassigned**, you would need to type: `assignee not in (jack,jill) or assignee is empty`.

Examples

- Find all issues where the Assignee is someone other than Jack, Jill or John:

```
assignee not in (Jack,Jill,John)
```

- Find all issues where the Assignee is not Jack, Jill or John:

```
assignee not in (Jack,Jill,John) or assignee is empty
```

- Find all issues where the FixVersion is not 'A', 'B', 'C' or 'D':

```
FixVersion not in ( A, B, C, D)
```

- Find all issues where the FixVersion is not 'A', 'B', 'C' or 'D', or has not been specified:

```
FixVersion not in ( A, B, C, D) or FixVersion is empty
```

CONTAINS: ~

The "~" operator is used to search for issues where the value of the specified field matches the specified value (either an exact match or a "fuzzy" match — see examples below). For use with text fields only, i.e.:

- Summary
- Description
- Environment
- Comments
- custom fields which use the "Free Text Searcher"; this includes custom fields of the following built-in Custom Field Types
  - Free Text Field (unlimited text)
  - Text Field (< 255 characters)
  - Read-only Text Field

Note: when using the "~" operator, the value on the right-hand side of the operator can be specified using JIRA text-search syntax.

Examples

- Find all issues where the Summary contains the exact phrase "full screen":

```
summary ~ "full screen"
```

- Find all issues where the Summary contains the word "win" (or simple derivatives of that word, such as "wins"):

```
summary ~ win
```

- Find all issues where the Summary contains a wild-card match for the word "win":

```
summary ~ "win*"
```

DOES NOT CONTAIN: !~

The "`!~`" operator is used to search for issues where the value of the specified field is not a "fuzzy" match for the specified value. For use with text fields only, i.e.:

- Summary
- Description
- Environment
- Comments
- custom fields which use the "Free Text Searcher"; this includes custom fields of the following built-in Custom Field Types
  - Free Text Field (unlimited text)
  - Text Field (< 255 characters)
  - Read-only Text Field

Note: when using the "`!~`" operator, the value on the right-hand side of the operator can be specified using JIRA text-search syntax.

Examples

- Find all issues where the Summary does not contain the word "run" (or derivatives of that word, such as "running" or "ran"):

```
summary !~ run
```

IS

The "`IS`" operator can only be used with EMPTY or NULL. That is, it is used to search for issues where the specified field has no value.

Note that not all fields are compatible with this operator; see the individual field reference for details.

Examples

- Find all issues that have no Fix Version:

```
fixVersion is empty
```

  or

```
fixVersion is null
```

IS NOT

The "`IS NOT`" operator can only be used with EMPTY or NULL. That is, it is used to search for issues where the specified field has a value.

Note that not all fields are compatible with this operator; see the individual field reference for details.

Examples

- Find all issues that have one or more votes:

```
votes is not empty
```

  or

```
votes is not null
```

WAS

The "`WAS`" operator is used to find issues that currently have, or previously had, the specified value for the specified field.

Unable to render {include} Couldn't find a page to include called: __JQL WAS Parameters

Note that this operator will match the value name (e.g. "Resolved") that was configured in your system *at the time that the field was changed*.

Also note that it will match the value name, not the value ID — that is, it will match "Resolved" but not "4".

(Note: this operator can currently be used with the Status field only.)

Examples

- Find issues that currently have, or previously had, a status of 'In Progress':

```
status WAS "In Progress"
```

- Find issues that were resolved by Joe Smith:

```
status WAS "Resolved" BY jsmith
```

WAS IN

The "`WAS IN`" operator is used to find issues that currently have, or previously had, any of multiple specified values for the specified field. The values are specified as a comma-delimited list, surrounded by parentheses.

Using "`WAS IN`" is equivalent to using multiple `WAS` statements, but is shorter and more convenient. That is, typing `status WAS IN ('Resolved', 'Closed')` is the same as typing `status WAS "Resolved" OR status WAS "Closed"`.

Unable to render {include} Couldn't find a page to include called: __JQL WAS Parameters

Note that this operator will match the value name (e.g. "Resolved") that was configured in your system *at the time that the field was changed*. Also note that it will match the value name, not the value ID — that is, it will match "Resolved" but not "4".

(Note: this operator can currently be used with the Status field only.)

Examples

- Find all issues that currently have, or previously had, a status of 'Resolved' or 'In Progress':

```
status WAS IN ("Resolved","In Progress")
```

WAS NOT IN

The "`WAS NOT IN`" operator is used to search for issues where the value of the specified field has never been one of multiple specified values.

Using "`WAS NOT IN`" is equivalent to using multiple `WAS_NOT` statements, but is shorter and more convenient. That is, typing `status WAS NOT IN ("Resolved","In Progress")` is the same as typing `status WAS NOT "Resolved" AND status WAS NOT "In Progress"`.

Unable to render {include} Couldn't find a page to include called: __JQL WAS Parameters

Note that this operator will match the value name (e.g. "Resolved") that was configured in your system *at the time that the field was changed*. Also note that it will match the value name, not the value ID — that is, it will match "Resolved" but not "4".

(Note: this operator can currently be used with the Status field only.)

Examples

- Find issues that have never had a status of 'Resolved' or 'In Progress':

```
status WAS NOT IN ("Resolved","In Progress")
```

WAS NOT

The "`WAS NOT`" operator is used to find issues that have never had the specified value for the specified field.

Unable to render {include} Couldn't find a page to include called: __JQL WAS Parameters

Note that this operator will match the value name (e.g. "Resolved") that was configured in your system *at the time that the field was changed*. Also note that it will match the value name, not the value ID — that is, it will match "Resolved" but not "4".

(Note: this operator can currently be used with the Status field only.)

Examples

- Find issues that do not have, and has never had, a status of 'In Progress':

```
status WAS NOT "In Progress"
```

Fields Reference

- Affected Version
- Assignee
- Category
- Comment
- Component
- Created
- Custom Field
- Description
- Due
- Environment
- Filter
- Fix Version
- Issue Key
- Level
- Original Estimate
- Parent
- Priority
- Project
- Remaining Estimate
- Reporter
- Resolution
- Resolved
- Status
- Summary
- Text
- Type
- Time Spent
- Updated
- Voter
- Votes
- Watcher
- Work Ratio

Affected Version

Search for issues that are assigned to a particular Affects Version(s). You can search by version name or version ID (i.e. the number that JIRA automatically allocates to a version).

It is safer to search by version ID than by version name
Different projects may have versions with the same name, so searching by version name may return issues from multiple projects. It is also possible for your JIRA administrator to change the name of a version, which could break any saved filters which rely on that name. Version IDs, however, are unique and cannot be changed.

Note: this field supports auto-complete.

Syntax

```
affectedVersion
```

Field Type

VERSION

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

Note that the comparison operators (e.g. ">") use the version order that has been set up by your project administrator, not a numeric or alphabetic order.

Supported Functions

When used with the IN and NOT_IN operators, this field supports:

- releasedVersions()
- latestReleasedVersion()
- unreleasedVersions()
- earliestUnreleasedVersion()

Examples

- Find issues with an AffectedVersion of 3.14:

```
affectedVersion = "3.14"
```

  (Note that full-stops are reserved characters, so they need to be surrounded by quote marks.)
- Find issues with an AffectedVersion of "Big Ted":

```
affectedVersion = "Big Ted"
```

- Find issues with an AffectedVersion ID of 10350:

```
affectedVersion = 10350
```

Assignee

Search for issues that are assigned to a particular user. You can search by the user's Full Name, ID or Email Address.

Note: this field supports auto-complete.

Syntax

```
assignee
```

Field Type

USER

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

When used with the IN and NOT_IN operators, this field supports:

- membersOf()

When used with the EQUALS and NOT_EQUALS operators, this field supports:

- currentUser()

Examples

- Search for issues that are assigned to John Smith:

```
assignee = "John Smith"
```

  or

```
assignee = jsmith
```

- Search for issues that are assigned by the user with email address "bob@mycompany.com":

```
assignee = "bob@mycompany.com"
```

  (Note that full-stops and "@" symbols are reserved characters, so the email address needs to be surrounded by quote-marks.)

Category

Search for issues that belong to projects in a particular Category.

Note: this field supports auto-complete.

Syntax

```
category
```

Field Type

CATEGORY

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues that belong to projects in the "Alphabet Projects" Category:

```
category = "Alphabet Projects"
```

Comment

Search for issues that have a Comment which contains particular text.

JIRA text-search syntax can be used.

Note: this field does not support auto-complete.

Syntax

```
comment
```

Field Type

TEXT

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues where a Comment contains text that matches "My PC is quite old" (i.e. a "fuzzy" match:

```
comment ~ "My PC is quite old"
```

- Find issues where a Comment contains the exact phrase "My PC is quite old":

```
comment ~ "\"My PC is quite old\""
```

Component

Search for issues that belong to a particular component(s) of a project. You can search by component name or component ID (i.e. the number that JIRA automatically allocates to a component).

> **It is safer to search by component ID than by component name**
> Different projects may have components with the same name, so searching by component name may return issues from multiple projects. It is also possible for your JIRA administrator to change the name of a component, which could break any saved filters which rely on that name. Component IDs, however, are unique and cannot be changed.

Note: this field supports auto-complete.

Syntax

```
component
```

Field Type

COMPONENT

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

When used with the IN and NOT_IN operators, **`component`** supports:

- componentsLeadByUser()

Examples

- Find issues in the "Comp1" or "Comp2" component:

  ```
  component in (Comp1, Comp2)
  ```

- Find issues in the "Comp1" *and* "Comp2" components:

  ```
  component in (Comp1) and component in (Comp2)
  ```

  or

  ```
  component = Comp1 and component = Comp2
  ```

- Find issues in the component with ID 20500:

  ```
  component = 20500
  ```

Created

Search for issues that were created on, before or after a particular date (or date range). Note that if a time-component is not specified, midnight will be assumed.

Use one of the following formats:

```
"yyyy/MM/dd HH:mm"
"yyyy-MM-dd HH:mm"
"yyyy/MM/dd"
"yyyy-MM-dd"
```

Or use `"w"` (weeks), `"d"` (days), `"h"` (hours) or `"m"` (minutes) to specify a date relative to the current time. The default is `"m"` (minutes). Be sure to use quote-marks (`"`); if you omit the quote-marks, the number you supply will be interpreted as milliseconds after epoch (1970-1-1).

Note: this field does not support auto-complete.

Syntax

```
created
```

Alias:

```
createdDate
```

Field Type

DATE

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

When used with the EQUALS, NOT_EQUALS, GREATER_THAN, GREATER_THAN_EQUALS, LESS_THAN or LESS_THAN_EQUALS operators, this field supports:

- currentLogin()
- lastLogin()
- now()
- startOfDay()
- startOfWeek()
- startOfMonth()
- startOfYear()
- endOfDay()
- endOfWeek()
- endOfMonth()
- endOfYear()

Examples

- Find all issues created before 12th December 2010:

```
created < "2010/12/12"
```

- Find all issues created on or before 12th December 2010:

```
created <= "2010/12/13"
```

- Find all issues created on 12th December 2010 before 2:00pm:

```
created > "2010/12/12" and created < "2010/12/12 14:00"
```

- Find issues created less than one day ago:

```
created > "-1d"
```

- Find issues created in January 2011:

```
created > "2011/01/01" and created < "2011/02/01"
```

- Find issues created on 15 January 2011:

```
created > "2011/01/15" and created < "2011/01/16"
```

Custom Field

Only applicable if your JIRA administrator has created one or more Custom Fields.

Search for issues where a particular Custom Field has a particular value.

You can search by Custom Field name or Custom Field ID (i.e. the number that JIRA automatically allocates to an Custom Field).

> **It is safer to search by Custom Field ID than by Custom Field name**
> It is possible for a Custom Field to have the same name as a built-in JIRA system field, in which case JIRA will search on the system field (not your custom field). It is also possible for your JIRA administrator to change the name of a Custom Field, which could break any saved filters which rely on that name. Custom Field IDs, however, are unique and cannot be changed.

Note:

- JIRA text-search syntax can be used with Custom Fields of type 'Text'.
- auto-complete is supported for Custom Fields of type picker, group picker, select (except 'Cascading Select'), check-box and radio button fields.

Syntax

```
CustomFieldName
```

Alias:

```
cf[CustomFieldID]
```

Field Type

Depends on the Custom Field's configuration

Supported Operators

Different types of Custom Fields support different operators. For the default Custom Field Types, the following operators are supported:

- Number and date/time fields:

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✔	✔	✔	✔	✘	✘	✘	✘

- Picker, select, check-box and radio button fields:

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✘	✘	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘

- Text fields:

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✘	✘	✔	✔	✘	✘	✘	✘	✔	✔	✘	✘	✘	✘	✘	✘

Supported Functions

Different types of Custom Fields support different functions. For the default Custom Field Types, the following functions are supported:

- Date/time fields:

  When used with the EQUALS, NOT_EQUALS, GREATER_THAN, GREATER_THAN_EQUALS, LESS_THAN or LESS_THAN_EQUALS operators, this field supports:

  - currentLogin()
  - lastLogin()
  - now()
  - startOfDay()
  - startOfWeek()
  - startOfMonth()
  - startOfYear()
  - endOfDay()
  - endOfWeek()
  - endOfMonth()
  - endOfYear()
- Version picker fields:

When used with the IN and NOT_IN operators, this field supports:

- releasedVersions()
- latestReleasedVersion()
- unreleasedVersions()
- earliestUnreleasedVersion()

Examples

- Find issues where the value of the "Location" Custom Field is "New York":

```
location = "New York"
```

- Find issues where the value of the Custom Field with ID 10003 is "New York":

```
cf[10003] = "New York"
```

- Find issues where the value of the "Location" Custom Field is "London" or "Milan" or "Paris":

```
cf[10003] in ("London", "Milan", "Paris")
```

- Find issues where the "Location" Custom Field has no value:

```
location != empty
```

Description

Search for issues where the Description contains particular text.

JIRA text-search syntax can be used.

Note: this field does not support auto-complete.

Syntax

```
description
```

Field Type

TEXT

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues where the Description contains text that matches "Please see screenshot" (i.e. a "fuzzy" match):

```
description ~ "Please see screenshot"
```

- Find issues where the Description contains the exact phrase "Please see screenshot":

```
description ~ "\"Please see screenshot\""
```

Due

Search for issues that were due on, before or after a particular date (or date range). Note that if a time-component is not specified, midnight will be assumed.

Use one of the following formats:

```
"yyyy/MM/dd HH:mm"
"yyyy-MM-dd HH:mm"
"yyyy/MM/dd"
"yyyy-MM-dd"
```

Or use `"w"` (weeks), `"d"` (days), `"h"` (hours) or `"m"` (minutes) to specify a date relative to the current time. The default is `"m"` (minutes). Be sure to use quote-marks (`"`); if you omit the quote-marks, the number you supply will be interpreted as milliseconds after epoch (1970-1-1).

Note that Due Date relates to the *date* only (not to the time).

Note: this field does not support auto-complete.

Syntax

```
due
```

Alias:

```
dueDate
```

Field Type

DATE

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

When used with the EQUALS, NOT_EQUALS, GREATER_THAN, GREATER_THAN_EQUALS, LESS_THAN or LESS_THAN_EQUALS operators, this field supports:

- currentLogin()
- lastLogin()
- now()
- startOfDay()
- startOfWeek()
- startOfMonth()
- startOfYear()
- endOfDay()
- endOfWeek()
- endOfMonth()
- endOfYear()

Examples

- Find all issues due before 31st December 2010:

  ```
  due < "2010/12/31"
  ```

- Find all issues due before 2:00pm on 31st December 2010:

  ```
  due < "2010/12/31 14:00"
  ```

- Find all issues due on or before 31st December 2010:

  ```
  due <= "2011/01/01"
  ```

- Find issues that are due tomorrow:

  ```
  due = "1d"
  ```

- Find issues that were due in January 2011:

```
due > "2011/01/01" and due < "2011/02/01"
```

- Find issues that were due on 15 January 2011:

```
due > "2011/01/15" and due < "2011/01/16"
```

Environment

Search for issues where the Environment contains particular text.

JIRA text-search syntax can be used.

Note: this field does not support auto-complete.

Syntax

```
environment
```

Field Type

TEXT

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues where the Environment contains text that matches "Third floor" (i.e. a "fuzzy" match):

```
environment ~ "Third floor"
```

- Find issues where the Environment contains the exact phrase "Third floor":

```
environment ~ "\"Third floor\""
```

Filter

You can use a saved filter to narrow your search. You can search by filter name or filter ID (i.e. the number that JIRA automatically allocates to a saved filter).

> **It is safer to search by filter ID than by filter name**
> It is possible for a filter name to be changed, which could break a saved filter that invokes another filter by name. Filter IDs, however, are unique and cannot be changed.

Note:

- An ORDER BY statement in your typed query will override an ORDER BY statement in the saved filter.
- You cannot run or save a filter that would cause an infinite loop (i.e. you cannot reference a saved filter if it eventually references your current filter).
- This field supports auto-complete. Syntax

```
filter
```

Aliases:

```
request
```

```
savedFilter
```

```
searchRequest
```

Field Type

FILTER

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✘	✘	✘	✘	✘	✘	✔	✔	✘	✘	✘	✘

Supported Functions

n/a

Examples

- Search the results of the filter "My Saved Filter" (which has an ID of 12000) for issues assigned to the user jsmith:

```
filter = "My Saved Filter" and assignee = jsmith
```

or

```
filter = 12000 and assignee = jsmith
```

Fix Version

Search for issues that are assigned to a particular Fix Version. You can search by version name or version ID (i.e. the number that JIRA automatically allocates to a version).

> **It is safer to search by version ID than by version name**
> Different projects may have versions with the same name, so searching by version name may return issues from multiple projects. It is also possible for your JIRA administrator to change the name of a version, which could break any saved filters that rely on that name. Version IDs, however, are unique and cannot be changed.

Note: this field supports auto-complete.

Syntax

```
fixVersion
```

Field Type

VERSION

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✔	✔	✔	✔	✘	✘	✘	✘

Note that the comparison operators (e.g. ">") use the version order that has been set up by your project administrator, not a numeric or alphabetic order.

Supported Functions

When used with the IN and NOT_IN operators, this field supports:

- releasedVersions()
- latestReleasedVersion()
- unreleasedVersions()
- earliestUnreleasedVersion()

Examples

- Find issues with a Fix Version of 3.14 or 4.2:

```
fixVersion in ("3.14", "4.2")
```

  (Note that full-stops are reserved characters, so they need to be surrounded by quote marks.)
- Find issues with a Fix Version of "Little Ted":

```
fixVersion = "Little Ted"
```

- Find issues with a Fix Version ID of 10001:

```
fixVersion = 10001
```

Issue Key

Search for issues with a particular Issue Key or Issue ID (i.e. the number that JIRA automatically allocates to an Issue).

Note: this field does not support auto-complete.

Syntax

```
issueKey
```

Aliases:

```
id
```

```
issue
```

```
key
```

Field Type

ISSUE

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

When used with the IN or NOT_IN operators, **`issueKey`** supports:

- issueHistory()
- linkedIssues()
- votedIssues()
- watchedIssues()

Examples

- Find the issue with key "ABC-123":

```
issueKey = ABC-123
```

Level

Only available if Issue Level Security has been enabled by your JIRA administrator.

Search for issues with a particular Security Level. You can search by Issue Security Level name or Issue Security Level ID (i.e. the number that JIRA automatically allocates to an Issue Security Level).

> **It is safer to search by Security Level ID than by Security Level name**
> It is possible for your JIRA administrator to change the name of a Security Level, which could break any saved filter which rely on that name. Security Level IDs, however, are unique and cannot be changed.

Note: this field supports auto-complete.

Syntax

```
level
```

Field Type

SECURITY LEVEL

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✖	✖	✖	✖	✖	✖	✔	✔	✔	✔	✖	✖	✖	✖

Supported Functions

n/a

Examples

- Search for issues with a Security Level of "Really High" or "level1":

```
level in ("Really High", level1)
```

- Search for issues with a Security Level ID of 123:

```
level = 123
```

Original Estimate

Only available if time-tracking has been enabled by your JIRA administrator.

Search for issues where the Original Estimate is set to a particular value (i.e. a number, not a date or date range).

Use "w", "d", "h" and "m" to specify weeks, days, hours or minutes.

Note: this field does not support auto-complete.

Syntax

```
originalEstimate
```

Alias:

```
timeOriginalEstimate
```

Field Type

DURATION

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✖	✖	✔	✔	✔	✔	✔	✔	✔	✔	✖	✖	✖	✖

Supported Functions

n/a

Examples

- Find issues with an Original Estimate of 1 hour:

```
originalEstimate = 1h
```

- Find issues with an Original Estimate of more than 2 days:

```
originalEstimate > 2d
```

Parent

Only available if sub-tasks have been enabled by your JIRA administrator.

Search for all sub-tasks of a particular issue. You can search by Issue Key or by Issue ID (i.e. the number that JIRA automatically allocates to an Issue).

Note: this field does not support auto-complete.

Syntax

```
parent
```

Field Type

ISSUE

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues that are sub-tasks of issue TEST-1234:

```
parent = TEST-1234
```

Priority

Search for issues with a particular Priority. You can search by Priority name or Priority ID (i.e. the number that JIRA automatically allocates to a Priority).

> **It is safer to search by Priorty ID than by Priority name**
> It is possible for your JIRA administrator to change the name of a Priority, which could break any saved filter which rely on that name. Priority IDs, however, are unique and cannot be changed.

Note: this field supports auto-complete.

Syntax

```
priority
```

Field Type

PRIORITY

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

n/a

Examples

- Find issues with a Priority of "High":

```
priority = High
```

- Find issues with a Priority ID of 10000:

```
priority = 10000
```

Project

Search for issues that belong to a particular Project

You can search by Project Name, by Project Key or by Project ID (i.e. the number that JIRA automatically allocates to a project).

Note: this field supports auto-complete.

Syntax

```
project
```

Field Type

PROJECT

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✘	✘	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

When used with the IN and NOT_IN operators, **`project`** supports:

- projectsLeadByUser()
- projectsWhereUserHasPermission()
- projectsWhereUserHasRole()

Examples

- Find issues that belong to the Project that has the name "ABC Project":

```
project = "ABC Project"
```

- Find issues that belong to the Project that has the key "ABC":

```
project = "ABC"
```

- Find issues that belong to the Project that has the ID "1234":

```
project = 1234
```

Remaining Estimate

Only available if time-tracking has been enabled by your JIRA administrator.

Search for issues where the Remaining Estimate is set to a particular value (i.e. a number, not a date or date range).

Use "w", "d", "h" and "m" to specify weeks, days, hours or minutes.

Note: this field does not support auto-complete.

Syntax

```
remainingEstimate
```

Alias:

```
timeEstimate
```

Field Type

DURATION

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues with a Remaining Estimate of more than 4 hours:

```
remainingEstimate > 4h
```

Reporter

Search for issues that were reported by (i.e. created by) a particular user.

You can search by the user's Full Name, ID or Email Address.

Note: this field supports auto-complete.

Syntax

```
reporter
```

Field Type

USER

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

When used with the IN and NOT_IN operators, this field supports:

- membersOf()

When used with the EQUALS and NOT_EQUALS operators, this field supports:

- currentUser()

Examples

- Search for issues that were created by Jill Jones:

```
reporter = "Jill Jones"
```

or

```
reporter = jjones
```

- Search for issues that were created by the user with email address "bob@mycompany.com":

```
assignee = "bob@mycompany.com"
```

(Note that full-stops and "@" symbols are reserved characters, so the email address needs to be surrounded by quote-marks.)

Resolution

Search for issues that have a particular Resolution

You can search by Resolution name or Resolution ID (i.e. the number that JIRA automatically allocates to a Resolution).

> **It is safer to search by Resolution ID than Resolution name**
> It is possible for your JIRA administrator to change the name of a Resolution, which could break any saved filter which rely on that name. Resolution IDs, however, are unique and cannot be changed.

Note: this field supports auto-complete.

Syntax

```
resolution
```

Field Type

RESOLUTION

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

n/a

Examples

- Find issues with a Resolution of "Cannot Reproduce" or "Won't Fix":

```
resolution in ("Cannot Reproduce", "Won't Fix")
```

- Find issues with a Resolution ID of 5:

```
resolution = 5
```

- Find issues that do not have a Resolution:

```
resolution = unresolved
```

Resolved

Search for issues that were resolved on, before or after a particular date (or date range). Note that if a time-component is not specified, midnight will be assumed.

Use one of the following formats:

```
"yyyy/MM/dd HH:mm"
"yyyy-MM-dd HH:mm"
"yyyy/MM/dd"
"yyyy-MM-dd"
```

Or use `"w"` (weeks), `"d"` (days), `"h"` (hours) or `"m"` (minutes) to specify a date relative to the current time. The default is `"m"` (minutes). Be sure to use quote-marks (`"`); if you omit the quote-marks, the number you supply will be interpreted as milliseconds after epoch (1970-1-1).

Note: this field does not support auto-complete.

Syntax

```
resolved
```

Alias:

```
resolutionDate
```

Field Type

DATE

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

When used with the EQUALS, NOT_EQUALS, GREATER_THAN, GREATER_THAN_EQUALS, LESS_THAN or LESS_THAN_EQUALS operators, **`resolved`** supports:

- currentLogin()
- lastLogin()
- now()

Examples

- Find all issues that were resolved before 31st December 2010:

  ```
  resolved <= "2010/12/31"
  ```

- Find all issues that were resolved before 2.00pm on 31st December 2010:

  ```
  resolved < "2010/12/31 14:00"
  ```

- Find all issues that were resolved on or before 31st December 2010:

  ```
  resolved <= "2011/01/01"
  ```

- Find issues that were resolved in January 2011:

  ```
  resolved > "2011/01/01" and resolved < "2011/02/01"
  ```

- Find issues that were resolved on 15 January 2011:

  ```
  resolved > "2011/01/15" and resolved < "2011/01/16"
  ```

- Find issues that were resolved in the last hour:

  ```
  resolved > -1h
  ```

Status

Search for issues that have a particular Status.

You can search by Status name or Status ID (i.e. the number that JIRA automatically allocates to a Status).

> **It is safer to search by Status ID than Status name**
> It is possible for your JIRA administrator to change the name of a Status, which could break any saved filter which rely on that name. Status IDs, however, are unique and cannot be changed.
>
> Please note, though, that the `WAS`, `WAS_NOT`, `WAS_IN` and `WAS_NOT_IN` operators can only be used with the name (not the ID).

Note: this field supports auto-complete.

Syntax

```
status
```

Field Type

STATUS

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓

Supported Functions

n/a

Examples

- Find issues with a Status of "Open":

  ```
  status = Open
  ```

- Find issues with a Status ID of 1:

  ```
  status = 1
  ```

- Find issues that currently have, or previously had, a Status of "Open":

  ```
  status WAS Open
  ```

Summary

Search for issues where the Summary contains particular text.

JIRA text-search syntax can be used.

Note: this field does not support auto-complete.

Syntax

```
summary
```

Field Type

TEXT

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues where the Summary contains text that matches "Error saving file" (i.e. a "fuzzy" match):

```
summary ~ "Error saving file"
```

- Find issues where the Summary contains the exact phrase "Error saving file":

```
summary ~ "\"Error saving file\""
```

Text

This is a "master-field" that allows you to search all text fields, i.e.:

- Summary
- Description
- Environment
- Comments
- custom fields which use the "Free Text Searcher"; this includes custom fields of the following built-in Custom Field Types
  - Free Text Field (unlimited text)
  - Text Field (< 255 characters)
  - Read-only Text Field

Note: The **`text`** master-field can only be used with the CONTAINS operator ("~" and "`!~`").

Syntax

```
text
```

Field Type

TEXT

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues where a text field matches the word "Fred":

```
text ~ "Fred"
```

or

```
text ~ Fred
```

- Find all issues where a text field contains the exact phrase "full screen":

```
text ~ "\"full screen\""
```

Type

Search for issues that have a particular Issue Type.

You can search by Issue Type name or Issue Type ID (i.e. the number that JIRA automatically allocates to an Issue Type).

> **It is safer to search by Type ID than Type name**
> It is possible for your JIRA administrator to change the name of a Type, which could break any saved filter which rely on that name. Type IDs, however, are unique and cannot be changed.

Note: this field supports auto-complete.

Syntax

```
type
```

Alias:

```
issueType
```

Field Type

ISSUE_TYPE

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✘	✘	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

n/a

Examples

- Find issues with an Issue Type of "Bug":

  ```
  type = Bug
  ```

- Find issues with an Issue Type of "Bug" or "Improvement":

  ```
  issueType in (Bug,Improvement)
  ```

- Find issues with an Issue Type ID of 2:

  ```
  issueType = 2
  ```

Time Spent

Only available if time-tracking has been enabled by your JIRA administrator.

Search for issues where the Time Spent is set to a particular value (i.e. a number, not a date or date range).

Use "w", "d", "h" and "m" to specify weeks, days, hours or minutes.

Note: this field does not support auto-complete.

Syntax

```
timeSpent
```

Field Type

DURATION

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN

✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues where the Time Spent is more than 5 days:

```
timeSpent > 5d
```

Updated

Search for issues that were last updated on, before or after a particular date (or date range). Note that if a time-component is not specified, midnight will be assumed.

Use one of the following formats:

```
"yyyy/MM/dd HH:mm"
"yyyy-MM-dd HH:mm"
"yyyy/MM/dd"
"yyyy-MM-dd"
```

Or use `"w"` (weeks), `"d"` (days), `"h"` (hours) or `"m"` (minutes) to specify a date relative to the current time. The default is `"m"` (minutes). Be sure to use quote-marks (`"`); if you omit the quote-marks, the number you supply will be interpreted as milliseconds after epoch (1970-1-1).

Note: this field does not support auto-complete.

Syntax

```
updated
```

Alias:

```
updatedDate
```

Field Type

DATE

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

When used with the EQUALS, NOT_EQUALS, GREATER_THAN, GREATER_THAN_EQUALS, LESS_THAN or LESS_THAN_EQUALS operators, this field supports:

- currentLogin()
- lastLogin()
- now()
- startOfDay()
- startOfWeek()
- startOfMonth()
- startOfYear()
- endOfDay()
- endOfWeek()
- endOfMonth()
- endOfYear()

Examples

- Find issues that were last updated before 12th December 2010:

```
updated < "2010/12/12"
```

- Find issues that were last updated on or before 12th December 2010:

```
updated < "2010/12/13"
```

- Find all issues that were last updated before 2.00pm on 31st December 2010:

```
updated < "2010/12/31 14:00"
```

- Find issues that were last updated more than two weeks ago:

```
updated < "-2w"
```

- Find issues that were last updated on 15 January 2011:

```
updated > "2011/01/15" and updated < "2011/01/16"
```

- Find issues that were last updated in January 2011:

```
updated > "20011/01/01" and updated < "2011/02/01"
```

Voter

Search for issues for which a particular user has voted. You can search by the user's Full Name, ID or Email Address. Note that you can only find issues for which you have the "View Voters and Watchers" permission, unless you are searching for your own votes. See also votedIssues.

Note: this field supports auto-complete.

Syntax

```
voter
```

Field Type

USER

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✘	✘	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

When used with the IN and NOT_IN operators, this field supports:

- membersOf()

When used with the EQUALS and NOT_EQUALS operators, this field supports:

- currentUser()

Examples

- Search for issues for which you have voted:

```
voter = currentUser()
```

- Search for issues for which the user "jsmith" has voted:

```
voter = "jsmith"
```

- Search for issues for which a member of the group "jira-developers" has voted:

```
voter in membersOf("jira-developers")
```

Votes

Search for issues with a specified number of votes.

Note: this field does not support auto-complete.

Syntax

```
votes
```

Field Type

NUMBER

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✘	✘	✔	✔	✘	✘	✘	✘

Supported Functions

n/a

Examples

- Find all issues that have 12 or more votes:

```
votes >= 12
```

Watcher

Search for issues that a particular user is watching. You can search by the user's Full Name, ID or Email Address. Note that you can only find issues for which you have the "View Voters and Watchers" permission, unless you are searching for issues where you are the watcher. See also watchedIssues.

Note: this field supports auto-complete.

Syntax

```
voter
```

Field Type

USER

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✘	✘	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘

Supported Functions

When used with the IN and NOT_IN operators, this field supports:

- membersOf()

When used with the EQUALS and NOT_EQUALS operators, this field supports:

- currentUser()

Examples

- Search for issues that you are watching:

```
watcher = currentUser()
```

- Search for issues that the user "jsmith" is watching:

```
watcher = "jsmith"
```

- Search for issues that are being watched by a member of the group "jira-developers":

```
watcher in membersOf("jira-developers")
```

Work Ratio

Only available if time-tracking has been enabled by your JIRA administrator.

Search for issues where the Work Ratio has a particular value.

Work Ratio is calculated as follows: **workRatio = timeSpent / originalEstimate) x 100**

Note: this field does not support auto-complete.

Syntax

```
workRatio
```

Field Type

NUMBER

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

Supported Functions

n/a

Examples

- Find issues on which more than 75% of the Original Estimate has been spent:

```
workRatio > 75
```

Functions Reference

- cascadeOption()
- componentsLeadByUser()
- currentLogin()
- currentUser()
- earliestUnreleasedVersion()
- endOfDay()
- endOfMonth()
- endOfWeek()
- endOfYear()
- issueHistory()
- lastLogin()
- latestReleasedVersion()
- linkedIssues()
- membersOf()
- now()

- projectsLeadByUser()
- projectsWhereUserHasPermission()
- projectsWhereUserHasRole()
- releasedVersions()
- standardIssueTypes()
- startOfDay()
- startOfMonth()
- startOfWeek()
- startOfYear()
- subtaskIssueTypes()
- unreleasedVersions()
- votedIssues()
- watchedIssues()

cascadeOption()

Search for issues that match the selected values of a 'cascading select' custom field.

The *parentOption* parameter matches against the first tier of options in the cascading select field. The *childOption* parameter matches against the second tier of options in the cascading select field, and is optional.

The keyword `"none"` can be used to search for issues where either or both of the options have no value.

Syntax

```
cascadeOption(parentOption)
```

or

```
cascadeOption(parentOption,childOption)
```

Supported Fields

- custom fields of type 'Cascading Select'

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues where a custom field ("Location") has the value "USA" for the first tier and "New York" for the second tier:

```
location in cascadeOption("USA","New York")
```

- Find issues where a custom field ("Location") has the value "USA" for the first tier and any value (or no value) for the second tier:

```
location in cascadeOption("USA")
```

- Find issues where a custom field ("Location") has the value "USA" for the first tier and no value for the second tier:

```
location in cascadeOption("USA",none)
```

- Find issues where a custom field ("Location") has no value for the first tier and no value for the second tier:

```
location in cascadeOption(none)
```

- Find issues where a custom field ("Referrer") has the value "none" for the first tier and "none" for the second tier:

```
referrer in cascadeOption("\"none\"","\"none\"")
```

- Find issues where a custom field ("Referrer") has the value "none" for the first tier and no value for the second tier:

```
referrer in cascadeOption("\"none\"",none)
```

componentsLeadByUser()

Find issues in components that are lead by a specific user.

You can optionally specify a user, or if the user is omitted the current user (i.e. you) will be used.

Note that if you are not logged in to JIRA, a user must be specified.

Syntax

```
componentsLeadByUser()
```

or

```
componentsLeadByUser(username)
```

Supported Fields

- Component

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find open issues in components that are lead by you:

```
component in componentsLeadByUser() AND status = Open
```

- Find open issues in components that are lead by Bill:

```
component in componentsLeadByUser(bill) AND status = Open
```

currentLogin()

Perform searches based on the time at which the current user's session began. See also lastLogin.

Syntax

```
currentLogin()
```

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find issues that have been created during my current session:

```
created > currentLogin()
```

currentUser()

Perform searches based on the currently logged-in user.

Note that this function can only be used by logged-in users. So if you are creating a saved filter that you expect to be used by anonymous users, do not use this function.

Syntax

```
currentUser()
```

Supported Fields

- Assignee
- Reporter
- Voter
- Watcher
- custom fields of type User

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘

Examples

- Find issues that are assigned to me:

  ```
  assignee = currentUser()
  ```

- Find issues that were reported to me but are not assigned to me:

  ```
  reporter = currentUser() and assignee != currentUser()
  ```

earliestUnreleasedVersion()

Perform searches based on the earliest unreleased version (i.e. next version that is due to be released) of a specified project. See also unreleasedVersions.

Note that the "earliest" is determined by the ordering assigned to the versions, not by actual Version Due Dates.

Syntax

```
earliestUnreleasedVersion(project)
```

Supported Fields

- AffectedVersion
- FixVersion
- custom fields of type Version

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✔	✔	✘	✘	✘	✘

Examples

- Find issues whose FixVersion is the earliest unreleased version of the ABC project:

  ```
  fixVersion = earliestUnreleasedVersion(ABC)
  ```

- Find issues that relate to the earlist unreleased version of the ABC project:

  ```
  affectedVersion = earliestUnreleasedVersion(ABC) or fixVersion =
  earliestUnreleasedVersion(ABC)
  ```

endOfDay()

Perform searches based on the end of the current day. See also endOfWeek, endOfMonth and endOfYear; and startOfDay, startOfWeek, startOfMonth and startOfYear.

Syntax

```
endOfDay()
```

or

```
endOfDay("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. `endOfDay("+1")` is the same as `endOfDay("+1d")`.
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘	✘	✘	✘	✘

Examples

- Find issues due by the end of today:

```
due < endOfDay()
```

- Find issues due by the end of tomorrow:

```
due < endOfDay("+1")
```

endOfMonth()

Perform searches based on the end of the current month. See also endOfDay, endOfWeek and endOfYear; and startOfDay, startOfWeek, startOfMonth and startOfYear.

Syntax

```
endOfMonth()
```

or

```
endOfMonth("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. `endOfMonth("+1")` is the same as `endOfMonth("+1M")`.
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find issues due by the end of this month:

```
due < endOfMonth()
```

- Find issues due by the end of next month:

```
due endOfMonth("+1")
```

- Find issues due by the 15th of next month:

```
due endOfMonth("+15d")
```

endOfWeek()

Perform searches based on the end of the current week. See also endOfDay, endOfMonth and endOfYear; and startOfDay, startOfWeek, startOfMonth and startOfYear.

For the endOfWeek() function the result depends upon your locale. For example, in Europe the first day of the week is generally considered to be Monday, while in the USA it is considered to be Sunday.

Syntax

```
endOfWeek()
```

or

```
endOfWeek("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. endOfWeek("+1") is the same as endofWeek("+1w").
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find issues due by the end of this week:

```
due < endOfWeek()
```

- Find issues due by the end of next week:

```
due < endOfWeek("+1")
```

endOfYear()

Perform searches based on the end of the current year. See also startOfDay, startOfWeek and startOfMonth; and endOfDay, endOfWeek, endOfMonth and endOfYear.

```
startOfYear()
```

or

```
startOfYear("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. `endOfYear("+1")` is the same as `endofYear("+1y")`.
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find issues due by the end of this year:

  ```
  due < endOfYear()
  ```

- Find issues due by the end of March next year:

  ```
  due < endOfYear("+3M")
  ```

issueHistory()

Find issues that you have recently viewed, i.e. issues that are in the 'Recent Issues' section of the 'Issues' drop-down menu.

Note:

- `issueHistory()` returns up to 50 issues, whereas the 'Recent Issues' drop-down returns only 5.
- if you are not logged in to JIRA, only issues from your current browser session will be included.

Syntax

```
issueHistory()
```

Supported Fields

- Issue

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues which I have recently viewed, that are assigned to me:

  ```
  issue in issueHistory() AND assignee = currentUser()
  ```

lastLogin()

Perform searches based on the time at which the current user's previous session began. See also currentLogin.

Syntax

```
currentLogin()
```

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘	✘	✘	✘	✘

Examples

- Find issues that have been created during my last session:

  ```
  created > lastLogin()
  ```

latestReleasedVersion()

Perform searches based on the latest released version (i.e. the most recent version that has been released) of a specified project. See also releasedVersions().

Note that the "latest" is determined by the ordering assigned to the versions, not by actual Version Due Dates.

Syntax

```
latestReleasedVersion(project)
```

Supported Fields

- AffectedVersion
- FixVersion
- custom fields of type Version

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✔	✔	✘	✘	✘	✘

Examples

- Find issues whose FixVersion is the latest released version of the ABC project:

  ```
  fixVersion = latestReleasedVersion(ABC)
  ```

- Find issues that relate to the latest released version of the ABC project:

  ```
  affectedVersion = latestReleasedVersion(ABC) or fixVersion = latestReleasedVersion(ABC)
  ```

linkedIssues()

Perform searches based on issues which are linked to a specified issue.

You can optionally restrict the search to links of a particular type. Note that LinkType is case-sensitive.

Syntax

```
linkedIssues(issueKey)
```

or

```
linkedIssues(issueKey,linkType)
```

Supported Fields

- Issue

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues that are linked to a particular issue:

```
issue in linkedIssues(ABC-123)
```

- Find issues that are linked to a particular issue via a particular type of link:

```
issue in linkedIssues(ABC-123,"is duplicated by")
```

membersOf()

Perform searches based on the members of a particular group.

Syntax

```
membersOf(Group)
```

Supported Fields

- Assignee
- Reporter
- Voter
- Watcher
- custom fields of type User

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues where the Assignee is a member of the group "jira-developers":

```
assignee in membersOf("jira-developers")
```

- Search through multiple groups and a specific user, e.g:

```
reporter in membersOf("jira-developers") or reporter in membersOf("jira-administrators") or
reporter=jsmith
```

- Search for a particular group, but exclude a particular member or members, e.g.:

```
assignee in membersOf(QA) and assignee not in ("John Smith","Jill Jones")
```

- Exclude members of a particular group:

```
assignee not in membersOf(QA)
```

now()

Perform searches based on the current time.

Syntax

```
now()
```

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find issues that are overdue:

```
duedate < now() and status not in (closed, resolved)
```

projectsLeadByUser()

Find issues in projects that are lead by a specific user.

You can optionally specify a user, or if the user is omitted the current user will be used.

Note that if you are not logged in to JIRA, a user must be specified.

Syntax

```
projectsLeadByUser()
```

or

```
projectsLeadByUser(username)
```

Supported Fields

- Project

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find open issues in projects that are lead by you:

```
project in projectsLeadByUser() AND status = Open
```

- Find open issues in projects that are lead by Bill:

```
project in projectsLeadByUser(bill) AND status = Open
```

projectsWhereUserHasPermission()

Find issues in projects where you have a specific permission.

Note: This function operates at the project level. This means that if a permission (e.g. "Edit Issues") is granted to the reporter of issues in a project, then you may see some issues returned where you are
not the reporter and therefore don't have the permission specified.

Also note that this function is only available if you are logged in to JIRA.

Syntax

```
projectsWhereUserHasPermission(permission)
```

For the `permission` parameter you can specify any of the following:

Project Permission	Explanation
Add Comments	Permission to add comments to issues. Note that this does not include the ability to edit or delete comments.
Administer Projects	Permission to administer a project in JIRA. This includes the ability to edit project role membership, project components, project versions and some project details ('Project Name', 'URL', 'Project Lead', 'Project Description').
Assign Issues	Permission to assign issues to users. (See also Assignable User permission below)
Assignable User	Permission to be assigned issues. (Note that this does not include the ability to assign issues; see Assign Issue permission above).
Browse Projects	Permission to browse projects, use the Issue Navigator and view individual issues (except issues that have been restricted via Issue Security). **Many other permissions are dependent on this permission**, e.g. the 'Work On Issues' permission is only effective for users who also have the 'Browse Projects' permission.
Close Issues	Permission to close issues. (This permission is useful where, for example, developers resolve issues and testers close them). Also see the Resolve Issues permission.
Create Attachments	Permission to attach files to an issue. (Only relevant if attachments are enabled). Note that this does not include the ability to delete attachments.
Create Issues	Permission to create issues in the project. (Note that the Create Attachments permission is required in order to create attachments.) Includes the ability to create sub-tasks (if sub-tasks are enabled).
Delete All Attachments	Permission to delete any attachments, regardless of who added them.
Delete All Comments	Permission to delete any comments, regardless of who added them.
Delete All Worklogs	Permission to delete any worklog entries, regardless of who added them. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.
Delete Issues	Permission to delete issues. Think carefully about which groups or project roles you assign this permission to; usually it will only be given to administrators. Note that deleting an issue will delete all of its comments and attachments, even if the user does not have the Delete Comments or Delete Attachments permissions. However, the Delete Issues permission does not include the ability to delete individual comments or attachments.
Delete Own Attachments	Permission to delete attachments that were added by the user.
Delete Own Comments	Permission to delete comments that were added by the user.
Delete Own Worklogs	Permission to delete worklog entries that were added by the user. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.
Edit All Comments	Permission to edit any comments, regardless of who added them.
Edit All Worklogs	Permission to edit any worklog entries, regardless of who added them. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.

Edit Issues	Permission to edit issues (excluding the 'Due Date' field — see the Schedule Issues permission). Includes the ability to convert issues to sub-tasks and vice versa (if sub-tasks are enabled). Note that the Delete Issue permission is required in order to delete issues. The Edit Issue permission is usually given to any groups or project roles who have the Create Issue permission (perhaps the only exception to this is if you give **everyone** the ability to create issues — it may not be appropriate to give everyone the ability to edit too). Note that all edits are recorded in the Issue Change History for audit purposes.
Edit Own Comments	Permission to edit comments that were added by the user.
Edit Own Worklogs	Permission to edit worklog entries that were added by the user. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.
Link Issues	Permission to link issues together. (Only relevant if Issue Linking is enabled).
Manage Watcher List	Permission to manage (i.e. view/add/remove users to/from) the watcher list of an issue.
Modify Reporter	Permission to modify the 'Reporter' of an issue. This allows a user to create issues 'on behalf of' someone else. This permission should generally only be granted to administrators.
Move Issues	Permission to move issues from one project to another, or from one workflow to another workflow within the same project. Note that a user can only move issues to a project for which they have Create Issue permission.
Resolve Issues	Permission to resolve and reopen issues. This also includes the ability to set the 'Fix For version' field for issues. Also see the Close Issues permission.
Schedule Issues	Permission to schedule an issue — that is, set and edit the 'Due Date' of an issue.
Set Issue Security	Permission to set the security level on an issue to control who can access the issue. Only relevant if issue security has been enabled.
View Version Control	Permission to view the version control information (e.g. CVS, Subversion, FishEye, etc) for an issue. Note that for CVS, to view the Version Control information the project needs to be associated with at least one Repository.
View Voters and Watchers	Permission to view the voter list and watcher list of an issue. Also see the Manage Watcher List permission.
Work On Issues	Permission to log work against an issue, i.e. create a worklog entry. (Only relevant if Time Tracking is enabled).

Supported Fields

- Project

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find open issues in projects where you have the "Resolve Issues" permission:

```
project in projectsWhereUserHasPermission("Resolve Issues") AND status = Open
```

projectsWhereUserHasRole()

Find issues in projects where you have a specific role.

Note that this function is only available if you are logged in to JIRA.

Syntax

```
projectsWhereUserHasRole(rolename)
```

Supported Fields

- Project

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find open issues in projects where you have the "Developers" role:

```
project in projectsWhereUserHasRole("Developers") AND status = Open
```

releasedVersions()

Perform searches based on the released versions (i.e. versions that your JIRA administrator has released) of a specified project.

You can also search on the released versions of all projects, by omitting the *project* parameter.

See also latestReleasedVersion().

Syntax

```
releasedVersions()
```

or

```
releasedVersions(project)
```

Supported Fields

- AffectedVersion
- FixVersion
- custom fields of type Version

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues whose FixVersion is a released version of the ABC project:

```
fixVersion in releasedVersions(ABC)
```

- Find issues that relate to released versions of the ABC project:

```
affectedVersion in releasedVersions(ABC)
```

or

```
fixVersion in releasedVersions(ABC)
```

standardIssueTypes()

Perform searches based on "standard" Issue Types, that is, search for issues which are not sub-tasks.

See also subtaskIssueTypes().

Syntax

```
standardIssueTypes()
```

Supported Fields

- Type

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues that are not subtasks (i.e. issues whose Issue Type is a standard issue type, not a subtask issue type):

```
issuetype in standardIssueTypes()
```

startOfDay()

Perform searches based on the start of the current day. See also startOfWeek, startOfMonth and startOfYear; and endOfDay, endOfWeek, endOfMonth and endOfYear.

Syntax

```
startOfDay()
```

or

```
startOfDay("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. `startOfDay("+1")` is the same as `startofDay("+1d")`.
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find new issues created since the start of today:

```
created > startOfDay()
```

- Find new issues created since the start of yesterday:

```
created > startOfDay("-1")
```

- Find new issues created in the last three days:

```
created > startOfDay("-3d")
```

startOfMonth()

Perform searches based on the start of the current month. See also startOfDay, startOfWeek and startOfYear; and endOfDay, endOfWeek, endOfMonth and endOfYear.

Syntax

```
startOfMonth()
```

or

```
startOfMonth("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. `startOfMonth("+1")` is the same as `startofMonth("+1M")`.
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✔	✔	✘	✘	✔	✔	✔	✔	✘	✘	✘	✘	✘	✘	✘	✘

Examples

- Find new issues since the start of this month:

```
created > startOfMonth()
```

- Find new issues since the start of last month:

```
created > startOfMonth("-1")
```

- Find new issues since the 15th of this month:

```
created > startOfMonth("+14d")
```

startOfWeek()

Perform searches based on the start of the current week. See also startOfDay, startOfMonth and startOfYear; and endOfDay, endOfWeek, endOfMonth and endOfYear.

For the startOfWeek() function the result depends upon your locale. For example, in Europe the first day of the week is generally considered to be Monday, while in the USA it is considered to be Sunday.

Syntax

```
startOfWeek()
```

or

```
startOfWeek("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. startOfWeek("+1") is the same as startofWeek("+1w").
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated

- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find new issues since the start of this week:

  ```
  created > startOfWeek()
  ```

- Find new issues since the start of last week:

  ```
  created > startOfWeek("-1")
  ```

startOfYear()

Perform searches based on the start of the current year. See also startOfDay, startOfWeek and startOfMonth; and endOfDay, endOfWeek, endOfMonth and endOfYear.

```
startOfYear()
```

or

```
startOfYear("inc")
```

where *inc* is an optional increment of `(+/-)nn(y|M|w|d|h|m)`

- If the time unit qualifier is omitted it defaults to the natural period of the function, e.g. `startOfYear("+1")` is the same as `startofYear("+1y")`.
- If the plus/minus `(+/-)` sign is omitted, plus is assumed.

Supported Fields

- Created
- Due
- Updated
- custom fields of type Date/Time

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗

Examples

- Find new issues since the start of this year:

  ```
  created > startOfYear()
  ```

- Find new issues since the start of last year:

  ```
  created > startOfYear("-1")
  ```

subtaskIssueTypes()

Perform searches based on issues which are sub-tasks.

See also standardIssueTypes().

Syntax

```
subtaskIssueTypes()
```

Supported Fields

- Type

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues that are subtasks (i.e. issues whose Issue Type is a subtask issue type):

```
issuetype in subtaskIssueTypes()
```

unreleasedVersions()

Perform searches based on the unreleased versions (i.e. versions that your JIRA administrator has not yet released) of a specified project.

You can also search on the unreleased versions of all projects, by omitting the *project* parameter.

See also earliestUnreleasedVersion().

Syntax

```
unreleasedVersions()
```

or

```
unreleasedVersions(project)
```

Supported Fields

- AffectedVersion
- FixVersion
- custom fields of type Version

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues whose FixVersion is an unreleased version of the ABC project:

```
fixVersion in unreleasedVersions(ABC)
```

- Find issues that relate to unreleased versions of the ABC project:

```
affectedVersion in unreleasedVersions(ABC)
```

  or

```
fixVersion in unreleasedVersions(ABC)
```

votedIssues()

Perform searches based on issues for which you have voted. Also see the Voter field.

Note that this function can only be used by logged-in users.

Syntax

```
votedIssues()
```

Supported Fields

- Issue

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues that you have voted for:

```
issue in votedIssues()
```

watchedIssues()

Perform searches based on issues which you are watching. Also see the Watcher field.

Note that this function can only be used by logged-in users.

Syntax

```
watchedIssues()
```

Supported Fields

- Issue

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues that you are watching:

```
issue in watchedIssues()
```

Supported Fields

- Issue

Supported Operators

=	!=	~	!~	>	>=	<	<=	IS	IS NOT	IN	NOT IN	WAS	WAS IN	WAS NOT	WAS NOT IN
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗

Examples

- Find issues that you have recently viewed:

```
issue in issueHistory()
```

Setting Precedence of Operators

You can use parentheses in complex JQL statements to enforce the precedence of operators.

For example, if you want to find all resolved issues in the SysAdmin project as well as all issues (any status, any project) currently assigned to the system administrator (bobsmith), you can use parentheses to enforce the precedence of the boolean operators in your query, i.e.:

```
(status=resolved AND project=SysAdmin) OR assignee=bobsmith
```

Note that if you do not use parentheses, the statement will be evaluated left-to-right.

You can also use parentheses to group clauses, so that you can apply the NOT operator to the group.

Performing Text Searches

You can use Lucene's text-searching features when performing searches on the following fields, using the CONTAINS operator:

- Summary
- Description
- Environment
- Comments
- custom fields which use the "Free Text Searcher"; this includes custom fields of the following built-in Custom Field Types
  - Free Text Field (unlimited text)
  - Text Field (< 255 characters)
  - Read-only Text Field

For details, please see the page on Performing Text Searches, which includes the following sections:

- Query Terms
- Term Modifiers
  - Wildcard Searches: ? and *
  - Fuzzy Searches: ~
  - Proximity Searches
- Boosting a Term: ^
- Boolean Operators
  - OR
  - AND
  - Required term: +
  - NOT
  - Excluded term: -
- Grouping
- Escaping Special Characters: \
- Reserved Words
- Limitations
  - Whole words only

Using Auto-complete

As you type your query, JIRA will recognise the context and offer a list of "auto-complete" suggestions as follows:

- If you type a space at the start of your query...
- If you type one or more characters...
- If you type a field then a space...
- If you type a field, then an operator, then a space...
- If you type a field, then an operator, then one or more characters...

The list of auto-complete suggestions is displayed alphabetically and includes the first 15 matches. Note that auto-complete suggestions are not offered for function parameters.

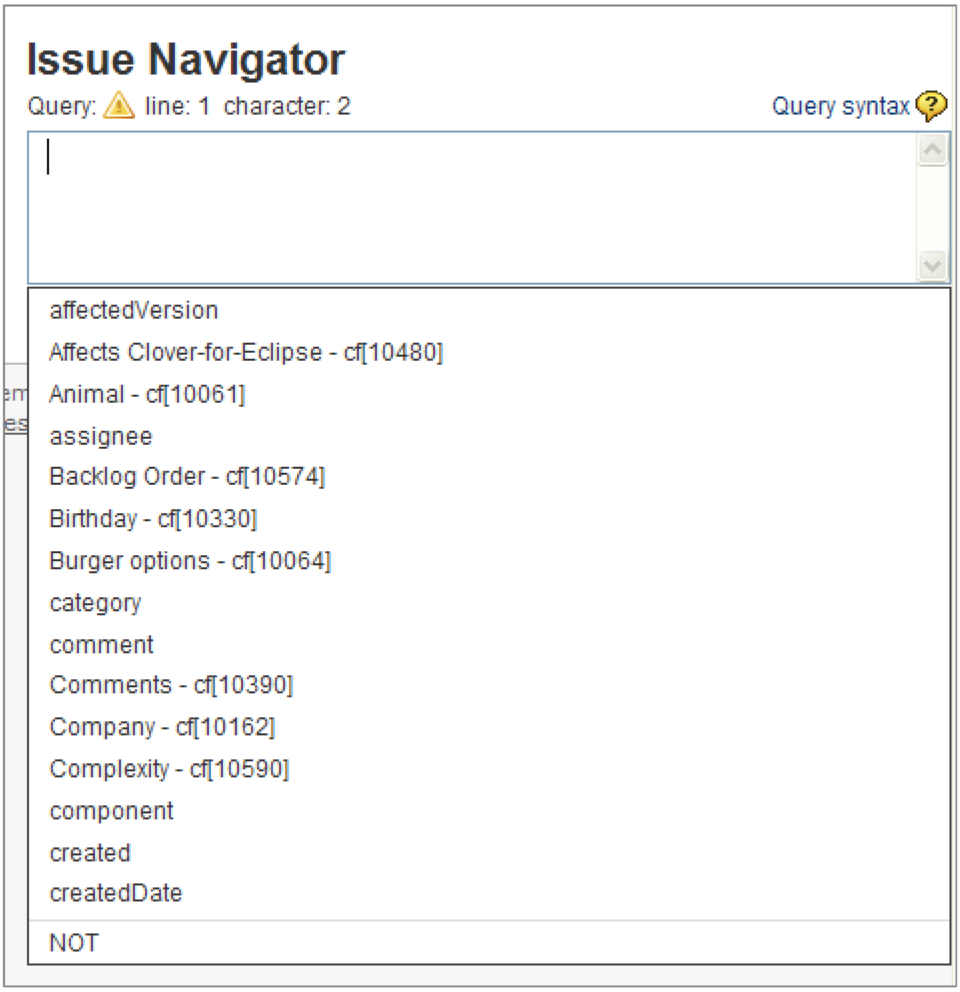
Please note:

- If no auto-complete suggestions are offered, your administrator may have disabled the "JQL Auto-complete" feature for your JIRA instance.
- If you prefer not to be offered auto-complete suggestions, click the "**Turn off auto-complete**" link below the "Query" box.

Auto-complete suggestions are not offered for all fields. Check the fields reference to see which fields support auto-complete.

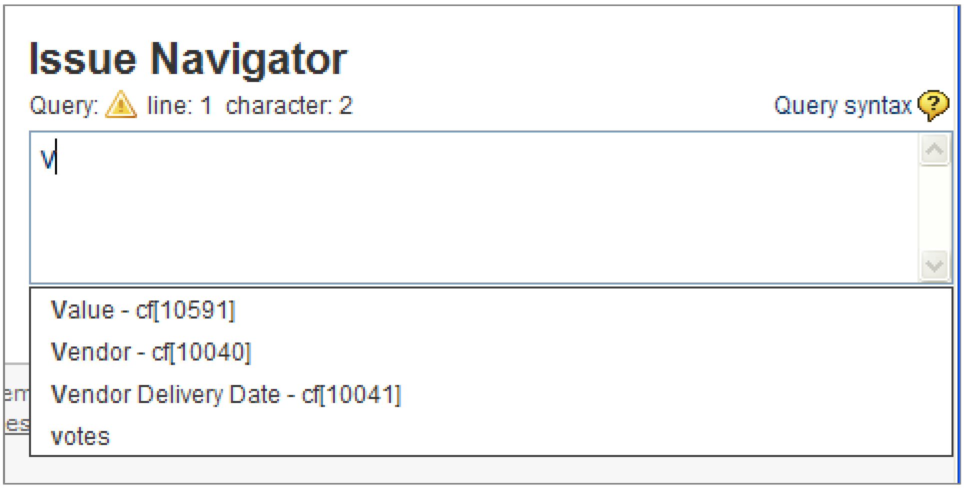
If you type a space at the start of your query...

...JIRA will offer a list of all available fields, e.g.:



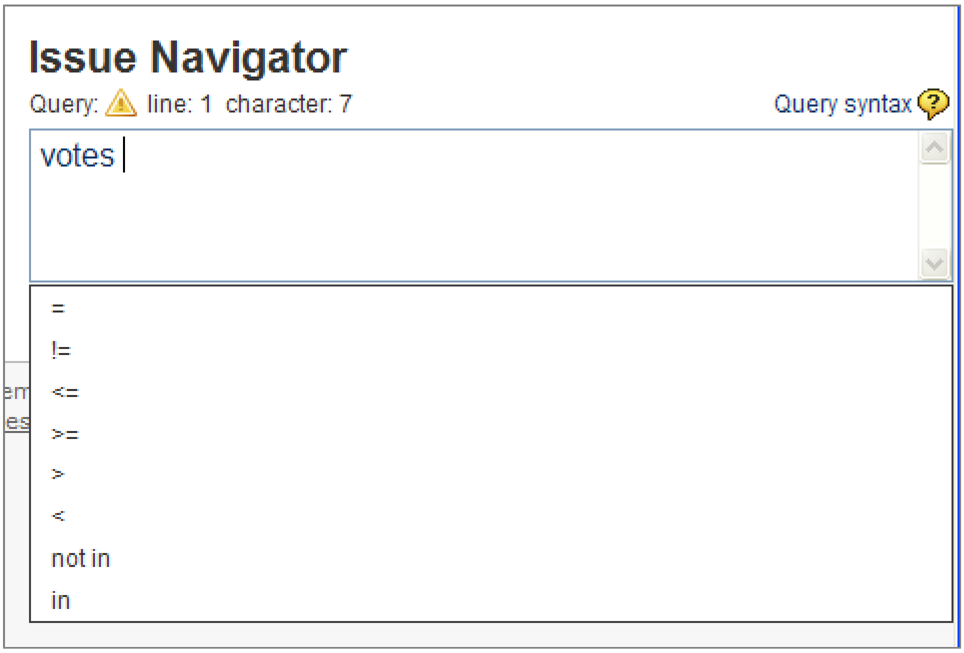
If you type one or more characters...

...JIRA will offer a list of matching fields, e.g.:



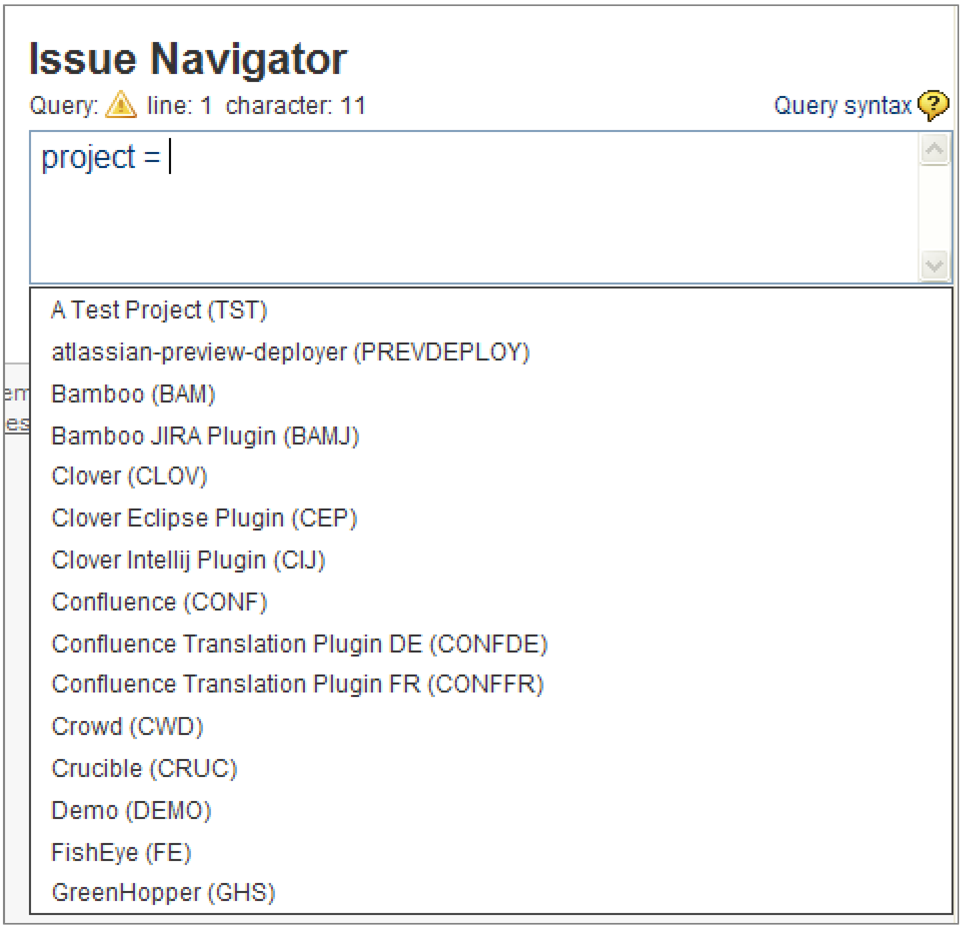
If you type a field then a space...

...JIRA will offer a list of valid operators, e.g.:



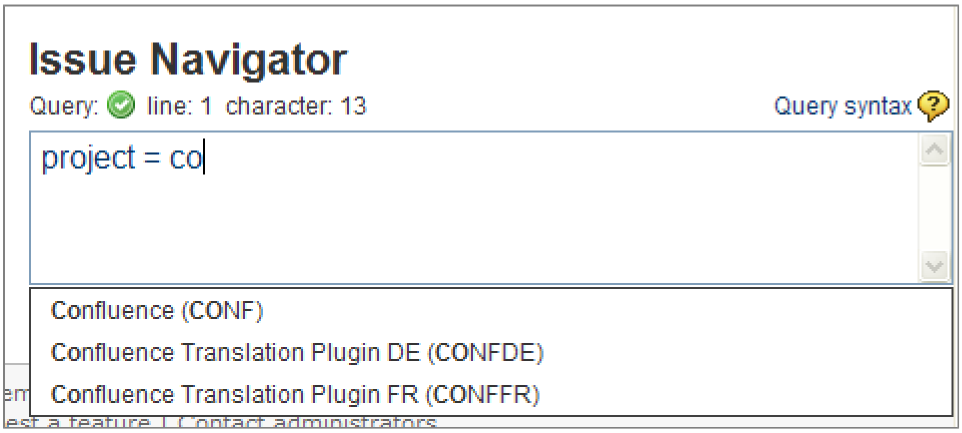
If you type a field, then an operator, then a space...

...JIRA will offer a list of valid values, e.g.:



If you type a field, then an operator, then one or more characters...

...JIRA will offer a list of valid values (if your field supports this) and valid functions for the field/operator combination, e.g.:



Switching between 'Advanced' and 'Simple' Search

In general, a query created using 'Simple Search' will be able to be translated to 'Advanced Search' (i.e. JQL), and back again.

However, a query created using 'Advanced Search' may not be able to be translated to 'Simple Search', particular if:

- the query contains an OR operator (note you can have an IN operator and it will be translated, e.g. `project in (A, B)`)
    - i.e. even though this query: `(project = JRA OR project = CONF)` is equivalent to this query: `(project in (JRA, CONF))`, only the second query will be translated.
- the query contains a NOT operator
- the query contains an EMPTY operator
- the query contains any of the comparison operators: !=, IS, IS NOT, >, >=, <, <=
- the query specifies a field and value that is related to a project (e.g. version, component, custom fields) and the project is not explicitly included in the query (e.g. `fixVersion = "4.0"`, without the `AND project=JRA`). This is especially tricky with custom fields since they can be configured on a Project/Issue Type basis. The general rule of thumb is that if the query cannot be created in the 'Simple Search' form, then if it is created using 'Advanced Search' it will not be able to be translated to 'Simple Search'.

Reserved Characters

JQL has a list of reserved characters:

- **space** (`" "`)
- `"+"`
- `"."`
- `","`
- `";"`
- `"?"`
- `"|"`
- `"*"`
- `"/"`
- `"%"`
- `"^"`
- `"$"`
- `"#"`
- `"@"`
- `"["`
- `"]"`

If you wish to use these characters in queries, you need to:

- surround them with quote-marks (you can use either single quote-marks (`'`) or double quote-marks (`"`)); **and**
- precede them with two backslashes.

For example:

```
summary ~ "\\[example\\]"
```

Note that there is an additional list of reserved characters for Text Searches, which applies to the following fields:

- Summary
- Description
- Environment
- Comments
- custom fields which use the "Free Text Searcher"; this includes custom fields of the following built-in Custom Field Types
    - Free Text Field (unlimited text)

- Text Field (< 255 characters)
- Read-only Text Field

.

Reserved Words

JQL has a list of reserved words. These words need to be surrounded by quote-marks if you wish to use them in queries:

"abort", "access", "add", "after", "alias", "all", "alter", "and", "any", "as", "asc",
"audit", "avg", "before", "begin", "between", "boolean", "break", "by", "byte", "catch", "cf",
"char", "character", "check", "checkpoint", "collate", "collation", "column", "commit", "connect", "continue",
"count", "create", "current", "date", "decimal", "declare", "decrement", "default", "defaults", "define", "delete",
"delimiter", "desc", "difference", "distinct", "divide", "do", "double", "drop", "else", "empty", "encoding",
"end", "equals", "escape", "exclusive", "exec", "execute", "exists", "explain", "false", "fetch", "file", "field",
"first", "float", "for", "from", "function", "go", "goto", "grant", "greater", "group", "having",
"identified", "if", "immediate", "in", "increment", "index", "initial", "inner", "inout", "input", "insert",
"int", "integer", "intersect", "intersection", "into", "is", "isempty", "isnull", "join", "last", "left",
"less", "like", "limit", "lock", "long", "max", "min", "minus", "mode", "modify",
"modulo", "more", "multiply", "next", "noaudit", "not", "notin", "nowait", "null", "number", "object",
"of", "on", "option", "or", "order", "outer", "output", "power", "previous", "prior", "privileges",
"public", "raise", "raw", "remainder", "rename", "resource", "return", "returns", "revoke", "right", "row",
"rowid", "rownum", "rows", "select", "session", "set", "share", "size", "sqrt", "start", "strict",
"string", "subtract", "sum", "synonym", "table", "then", "to", "trans", "transaction", "trigger", "true",
"uid", "union", "unique", "update", "user", "validate", "values", "view", "when", "whenever", "where",
"while", "with"

You can use either single quote-marks (`'`) or double quote-marks (`"`).

(Note for JIRA administrators: this list is hard coded in the `JqlStringSupportImpl.java` file.)

Note that there is an additional list of reserved words for Text Searches, which applies to the following fields:

- Summary
- Description
- Environment
- Comments
- custom fields which use the "Free Text Searcher"; this includes custom fields of the following built-in Custom Field Types
  - Free Text Field (unlimited text)
  - Text Field (< 255 characters)
  - Read-only Text Field

.

Displaying Search Results in XML

The JIRA Issue Navigator enables you to display your search results in XML format, suitable for use with the Confluence JIRA Issues Macro, for example. (Also suitable for use as an RSS 0.9.2 feed. Note: for an RSS 2.0 feed, please see 'Receiving Search Results via RSS'.)

You can choose which fields to include in the XML output, as described below.

Exporting to XML

To display your search results in XML format,

1. On the top navigation bar, click the **'Issues'** tab.
2. Refine your search, as described in *'Searching for Issues',* until the required results are displayed in the Issue Navigator.
3. Click the **'Views'** menu, and select **'XML'**.
4. Your search results will be displayed in XML format. Note:
   - If you wish to restrict which fields are included in the XML output, use the *`field`* parameter as described below.
   - To choose how many issues are included in the XML output, change the value of the **`tempMax`** parameter. The default is 1,000 issues (i.e. `tempMax=1000`).
5. Copy the URL that is currently displayed on your screen.
6. If you are using the Confluence **JIRA Issues Macro,** paste the URL into your Confluence document as described in the Confluence documentation.

Choosing which fields to include

To restrict which issue fields are returned in the XML export, specify the `field` parameter in your URL. For example, to include only the **Issue key** and **Summary,** add `&field=key&field=summary` to the URL.

Note:

- If the **field** parameter is not specified, the XML output will include *all* the issue fields.
- If one or more **field** parameters are specified, the XML output will contain only the **Issue key** plus your chosen field(s).

The complete list of available values for the field parameter is as follows:

Value	Sample XML output
title	<title>[TEST-4] This is a test</title>
link	<link>https://extranet.atlassian.com:443/jira/browse/TEST-4</link>
project (or **pid**)	<project id="10330" key="TST">Test</project>
description	<description>This is a detailed description of the issue.<description>
environment	<environment>Sydney network<environment>
key	<key id="22574">TEST-4</key>
summary	<summary>This is a test<summary>
type (or **issuetype**)	<type id="3" iconUrl="https://extranet.atlassian.com:443/jira/images/ic
parent	<parent id="22620">TEST-5</parent>
priority	<priority id="4" iconUrl="https://extranet.atlassian.com:443/jira/images/icons/priority_
status	<status id="5" iconUrl="https://extranet.atlassian.com:443/jira/images/icons/status_re
resolution	<resolution id="1">Fixed</resolution>

labels	<labels> <label>focus</label> <labels>
assignee	<assignee username="jsmith">John Smith</assignee>
reporter	<assignee username="jsmith">John Smith</assignee>
security	<security id="10021">Private</security>
created	<created>Mon, 1 Sep 2008 17:30:03 -0500 (CDT)>/created>
updated	<updated>Mon, 1 Sep 2008 17:30:03 -0500 (CDT)>/updated>
resolved (or **resolutiondate**)	<resolved>Mon, 1 Sep 2008 17:30:03 -0500 (CDT)>/resolved>
due (or **duedate**)	<due>Mon, 1 Sep 2008 17:30:03 -0500 (CDT)>/due>
version (or **versions**)	<version>2.4.7</version>
fixfor (or **fixVersions**)	<fixVersion>2.6</fixVersion>
component (or **components**)	<component>Documentation</component>
votes	<votes>1</votes>
comments (or **comment**)	<comments> <comment id="39270" author="jsmith" created="Tue, 24 Feb 2009 16:45 familiar</comment> <comment id="39273" author="jbrown" created="Tue, 24 Feb 2009 16:48 too</comment> </comments>

attachments (or **attachment**)	<attachments> <attachment id="30318" name="Issue Navigator - Atlassian JIRA-2.png" created="Mon, 9 Feb 2009 13:32:58 -0600 (CST)"/> <attachment id="30323" name="Windows XP (with Firefox 3.0).jpg" size created="Tue, 10 Feb 2009 00:30:11 -0600 (CST)"/> </attachments>
timeoriginalestimate	<timeoriginalestimate seconds="600">10 minutes</timeoriginalestimate>
timeestimate	<timeestimate seconds="300">5 minutes</timeestimate>
timespent	<timespent seconds="300">5 minutes</timespent>
aggregatetimeoriginalestimate	<aggregatetimeoriginalestimate seconds="36000">10 hours</aggregatetimeo
aggregatetimeestimate	<aggregatetimeremainingestimate seconds="18000">5 hours</aggregatetimer
aggregatetimespent	<aggregatetimespent seconds="18000">5 hours</aggregatetimespent>
timetracking	<timeoriginalestimate seconds="600">10 minutes</timeoriginalestimate> <timeestimate seconds="300">5 minutes</timeestimate> <timespent seconds="300">5 minutes</timespent> <aggregatetimeoriginalestimate seconds="36000">10 hours</aggregatetimeo <aggregatetimeremainingestimate seconds="18000">5 hours</aggregatetimer <aggregatetimespent seconds="18000">5 hours</aggregatetimespent>
issuelinks	<issuelinks> <issuelinktype id="10020"> <name>Duplicate</name> <inwardlinks description="is duplicated by"> <issuelink> <issuekey id="22477">INTSYS-1009</issuekey> </issuelink> </inwardlinks> </issuelinktype> </issuelinks>
subtasks (or **subtask**)	<subtasks> <subtask id="22623">TEST-8</subtask> </subtasks>

customfield_xxxxx	`<customfields>`
	`    <customfield id="customfield_10112" key="com.atlassian.jira.plugin.system.customfieldtypes:select">`
	`        <customfieldname>Department</customfieldname>`
	`        <customfieldvalues>`
	`            <customfieldvalue>Adminstration</customfieldvalue>`
	`        </customfieldvalues>`
	`    </customfield>`
	`</customfields>`

allcustom	`<customfields>`
	`    <customfield id="customfield_10112" key="com.atlassian.jira.plugin.system.customfieldtypes:select">`
	`        <customfieldname>Department</customfieldname>`
	`        <customfieldvalues>`
	`            <customfieldvalue>Adminstration</customfieldvalue>`
	`        </customfieldvalues>`
	`    </customfield>`
	`    <customfield id="customfield_10111" key="com.atlassian.jira.plugin.system.customfieldtypes:select">`
	`        <customfieldname>Expenditure Type</customfieldname>`
	`        <customfieldvalues>`
	`            <customfieldvalue>Operating</customfieldvalue>`
	`        </customfieldvalues>`
	`    </customfield>`
	`</customfields>`

Accessing protected data

When accessing data generated from JIRA, you may find that access to some resources requires user authentication (i.e. requires you to login). There are three options for this:

1. To enable access to data without logging in, your JIRA administrator may specify the 'Browse' permission for **Anyone.**
2. You can provide the parameters **os_username** and **os_password** in the request URL (e.g. `http://jira.atlassian.com/browse/TST-1?os_username=tester&os_password=tstpassword`). The problem with this method is that it transmits your username and password across the wire in clear text, which may not be an option for some users.
3. You can provide the request parameter **os_authType=basic** (e.g. `http://mycompany.com/anypage?os_authType=basic`). This will force the server to issue a challenge for user credentials (i.e. a login prompt) via the basic http authentication protocol. If you are running over SSL, you still need to specify the **os_authType=basic** parameter if you require the user to authenticate.

Generating Reports

JIRA provides reports that show statistics for particular people, projects, versions, or other fields within issues. The following reports are included with JIRA:

- Workload Pie Chart Report * — Shows the relative workload for assignees of all issues in a particular project or issue filter.
- User Workload Report * — Shows how much work a user has been allocated, and how long it should take.
- Version Workload Report * — Shows how much outstanding work there is (per user and per issue) before a given version is complete.
- Version Time Tracking Report * — Shows progress towards completing a given version, based on issues' work logs and time estimates.
- Single Level Group By Report — Shows the search results from an issue filter, grouped by a field of your choice.
- Created vs Resolved Issues Report — Shows the number of issues created vs number of issues resolved over a given period of time.
- Resolution Time Report — Shows the average time taken to resolve issues.
- Pie Chart Report — Shows the search results from a specified issue filter (or project) in a pie-chart, based on a statistic of your choice.
- Average Age Report — Shows the average age (in days) of unresolved issues.
- Recently Created Issues Report — Shows the rate at which issues are being created.
- Time Since Issues Report — Shows the number of issues for which your chosen date field (e.g. 'Created') was set on a given date.

* *Only available if your JIRA administrator has enabled Time Tracking.*

In addition to the built-in reports, other reports (e.g. Gantt Chart Report, Timesheet Report) are available for download from the Atlassian Plugin Exchange and the JIRA Extensions site. JIRA administrators can also create new reports with the plugin API — see How to create a JIRA Report.

Workload Pie Chart Report

The 'Workload Pie Chart' report displays the relative workload for assignees of all issues in a particular project or issue filter.

Note: this report is only available if your JIRA administrator has enabled time-tracking and installed the JIRA Charting Plugin.

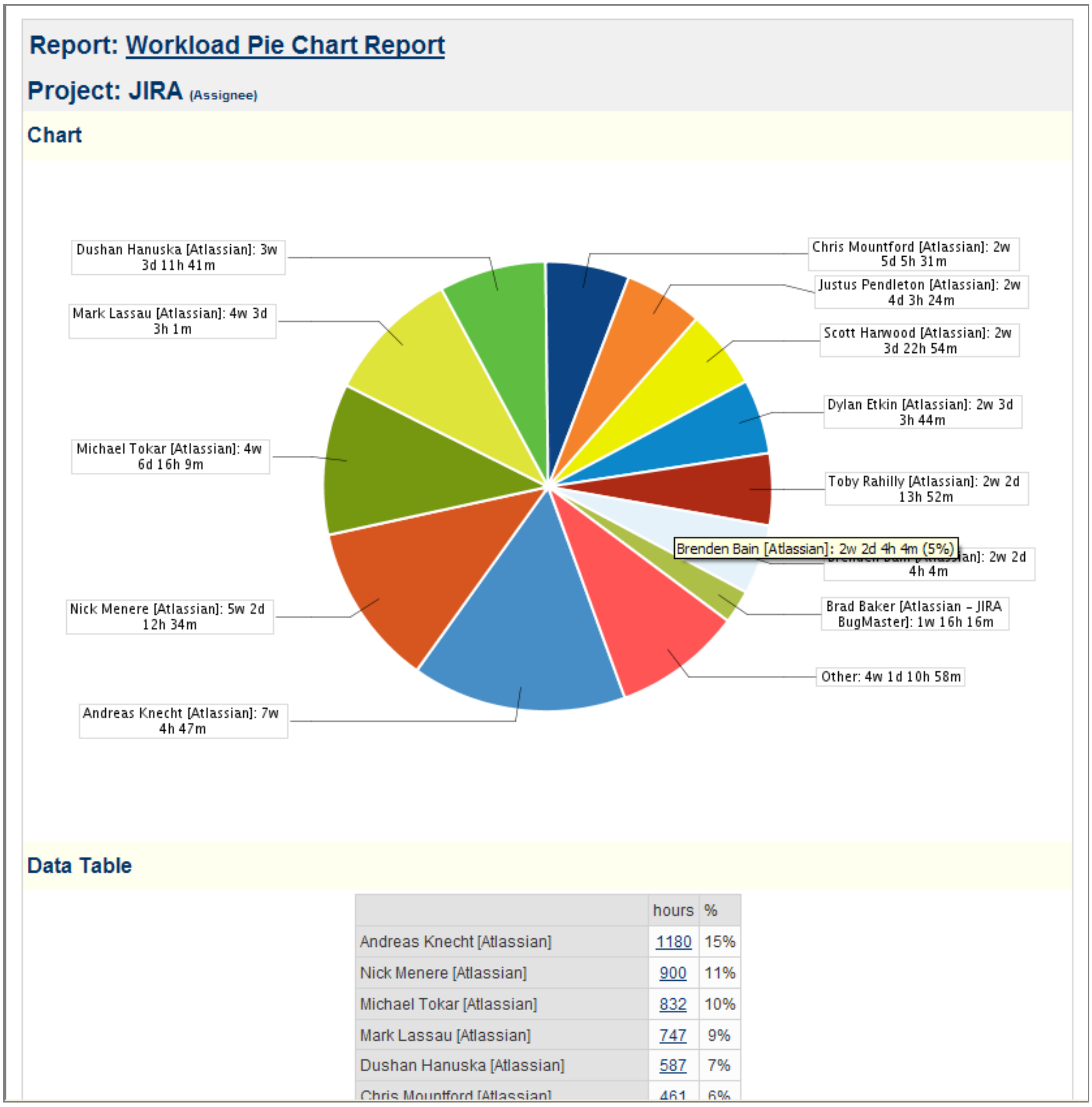
On this page:

- What does the 'Workload Pie Chart' report look like?
- Generating a 'Workload Pie Chart' report
- Configuring your Internet Explorer cache settings

What does the 'Workload Pie Chart' report look like?

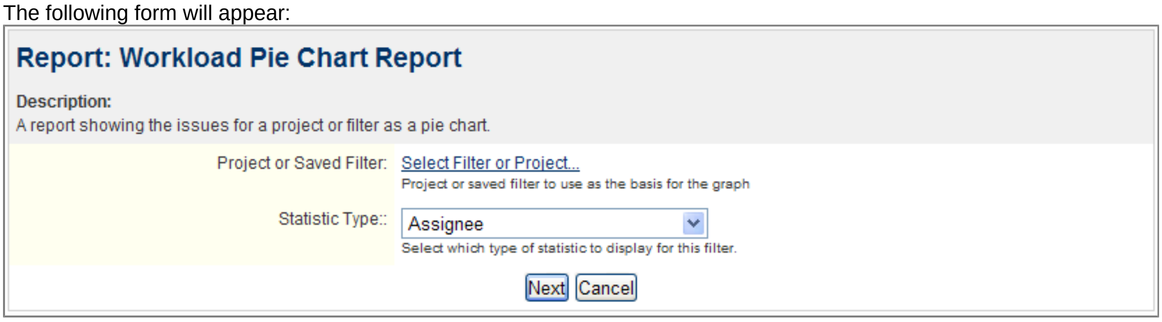
The report generated will look something like this:

Screenshot: 'Workload Pie Chart' report



Generating a 'Workload Pie Chart' report

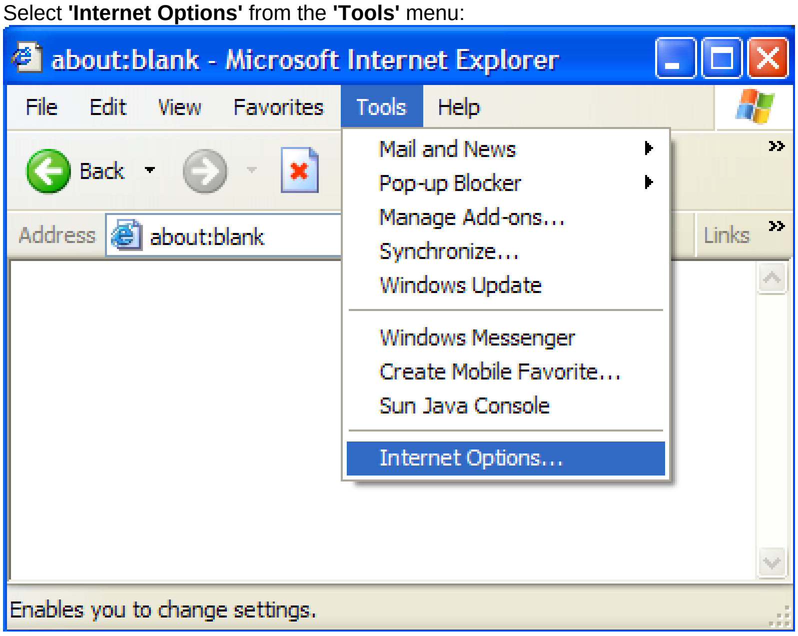
To generate a user workload report:

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click '**Workload Pie Chart Report**' from the dropdown menu that displays. The following form will appear:
   

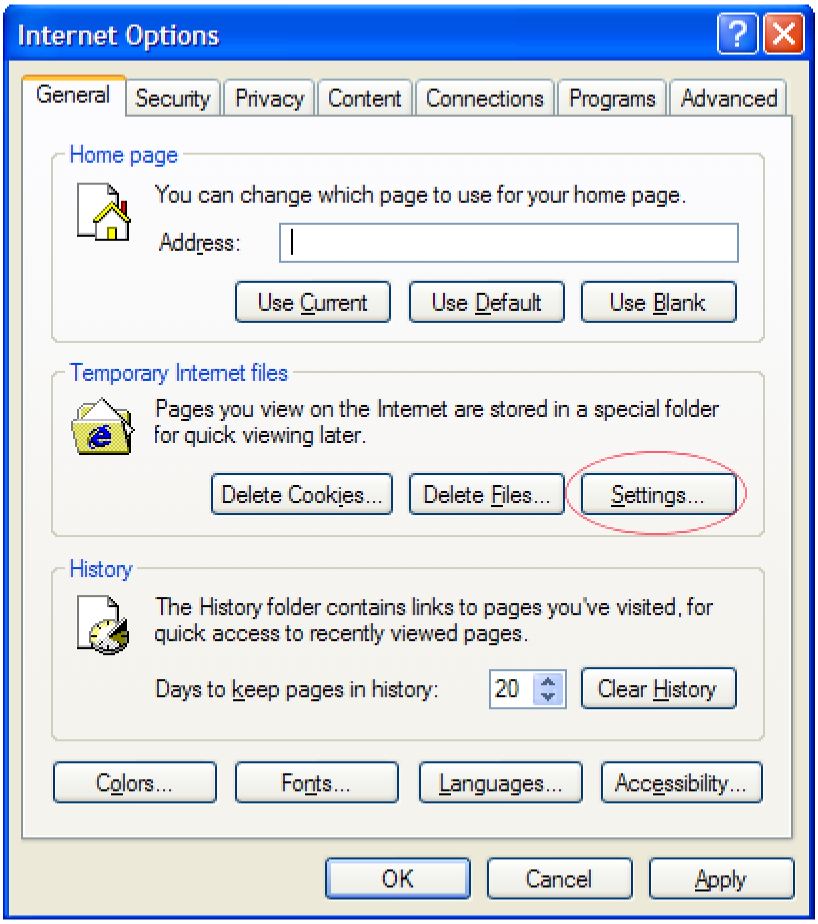
4. Select the project or issue filter for which you wish to generate a Workload Pie Chart report.
5. In the **'Statistic'** drop-down list, select the field on which the pie chart will be based (this will usually be Assignee).
6. Click '**Next**' to generate the report (see screenshot in previous section above).

Configuring your Internet Explorer cache settings

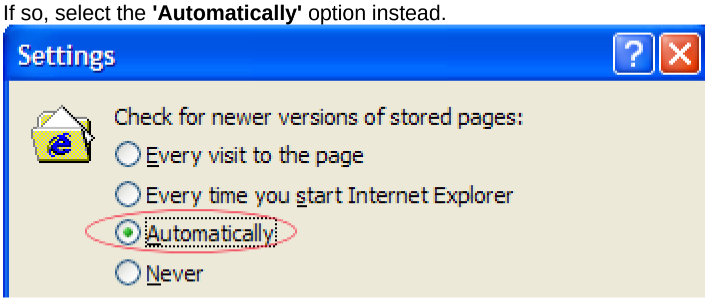
If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

1. Select **'Internet Options'** from the **'Tools'** menu:
   

2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



User Workload Report

The 'User Workload' report displays useful time tracking information on issues assigned to a particular user. It shows the number of unresolved issues assigned to the specified user, and the workload remaining, on a per-project basis.

Note: this report is only available if time tracking has been enabled by your JIRA administrator.

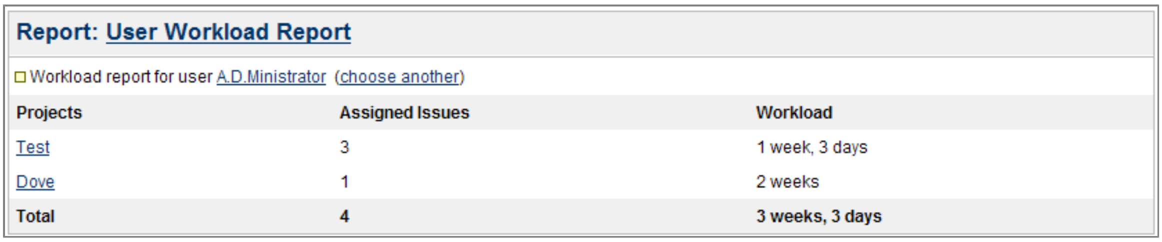
On this page:

- What does the 'User Workload' report look like?
- Generating a 'User Workload' report

What does the 'User Workload' report look like?

The report generated will look something like this:

Screenshot: 'User Workload' report



Report: User Workload Report

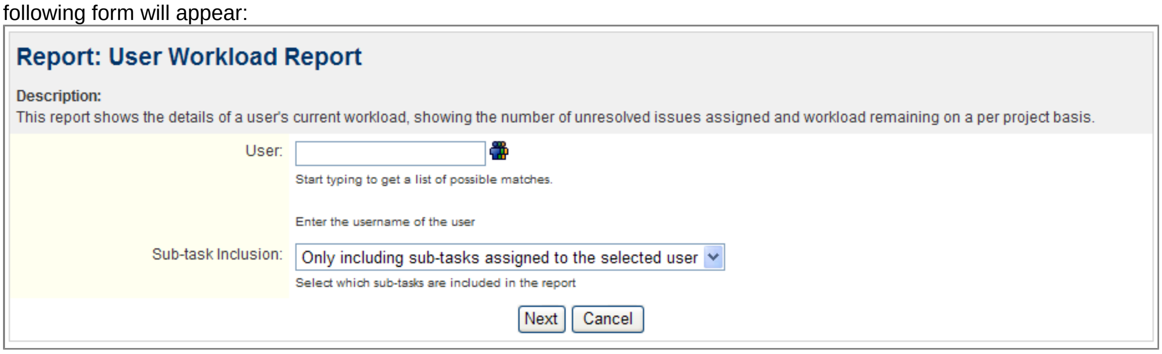
Workload report for user A.D.Ministrator (choose another)

Projects	Assigned Issues	Workload
Test	3	1 week, 3 days
Dove	1	2 weeks
Total	**4**	**3 weeks, 3 days**

The table shows the number of unresolved issues assigned to the specified user, and the workload remaining, on a per-project basis. The last line in the table shows the total the number of issues and the total workload remaining for this user.

Generating a 'User Workload' report

To generate a user workload report:

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click '**User Workload Report**' from the dropdown menu that displays. The following form will appear:
   

4. Select or type the name of the user for whom you wish to generate a User Workload report.
5. In the **'Sub-task Inclusion'** drop-down list (**note:** this will only appear if sub-tasks are enabled), choose which sub-tasks will be included in the report, for all parent issues that belong to this version:
   - Select **'Only including sub-tasks assigned to the selected user'** to only include an issue's sub-tasks if the sub-tasks are assigned to the selected user; or
   - Select **'Also including unassigned sub-tasks'** to include an issue's sub-tasks regardless of whether the sub-tasks are assigned to the selected user or not.
6. Click '**Next**' to generate the report (See screenshot in previous section above).

Version Workload Report

The Version Workload Report displays useful time tracking information on the current workload for a specific version within a specific project. For the specified version, it shows a list of unresolved issues assigned to each user, each user's workload, and a summary of the total workload remaining for the version.

> **Note:** this report is only available if time tracking has been enabled by your JIRA administrator.

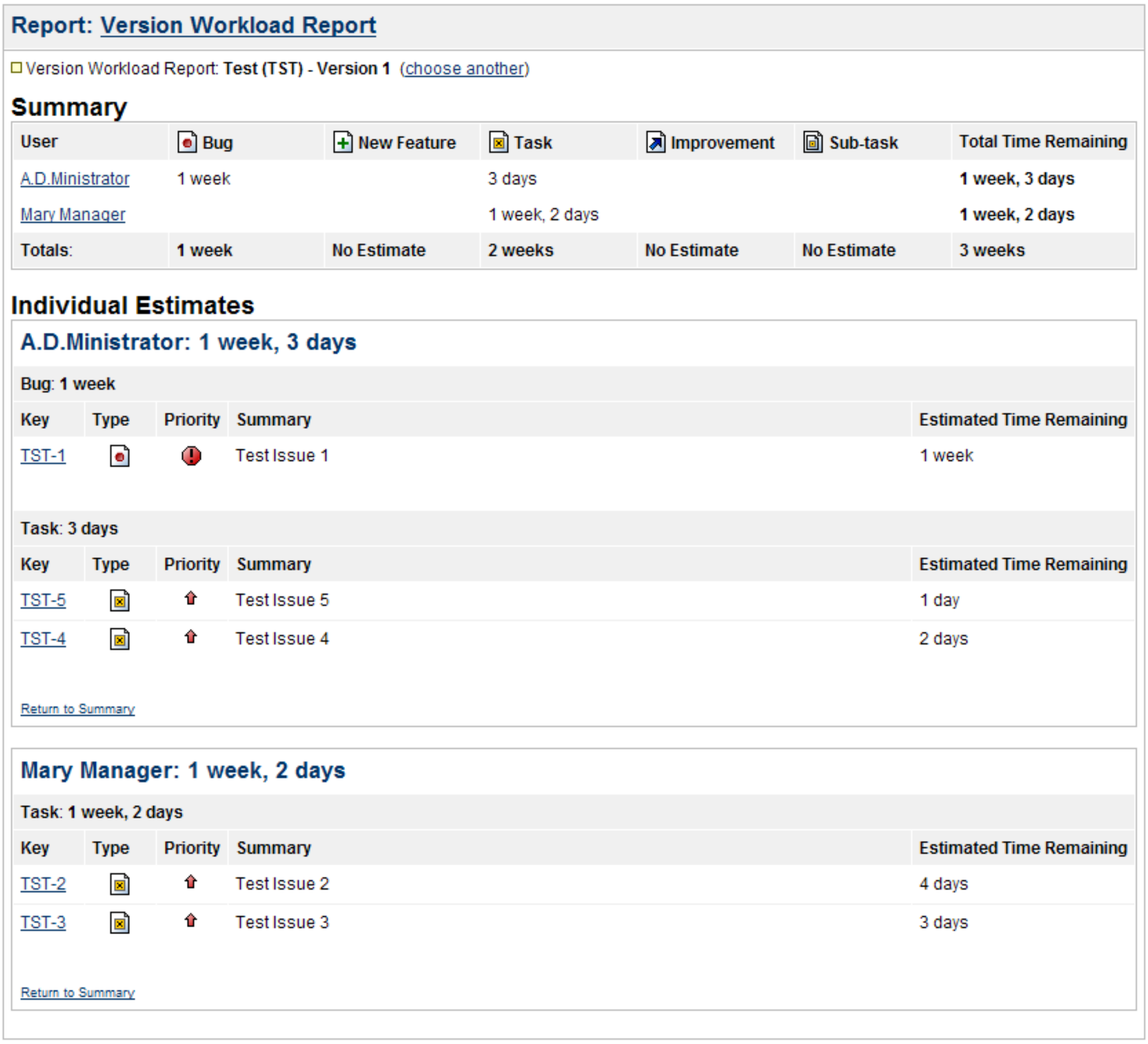
On this page:

- What does the 'Version Workload' report look like?
- Generating a Version Workload Report

What does the 'Version Workload' report look like?

The report generated will look something like this:

Screenshot: 'Version Workload' report



Report: Version Workload Report

Version Workload Report: **Test (TST) - Version 1** (choose another)

Summary

User	Bug	New Feature	Task	Improvement	Sub-task	Total Time Remaining
A.D.Ministrator	1 week		3 days			**1 week, 3 days**
Mary Manager			1 week, 2 days			**1 week, 2 days**
Totals:	**1 week**	**No Estimate**	**2 weeks**	**No Estimate**	**No Estimate**	**3 weeks**

Individual Estimates

A.D.Ministrator: 1 week, 3 days

Bug: **1 week**

Key	Type	Priority	Summary	Estimated Time Remaining
TST-1			Test Issue 1	1 week

Task: **3 days**

Key	Type	Priority	Summary	Estimated Time Remaining
TST-5			Test Issue 5	1 day
TST-4			Test Issue 4	2 days

Return to Summary

Mary Manager: 1 week, 2 days

Task: **1 week, 2 days**

Key	Type	Priority	Summary	Estimated Time Remaining
TST-2			Test Issue 2	4 days
TST-3			Test Issue 3	3 days

Return to Summary

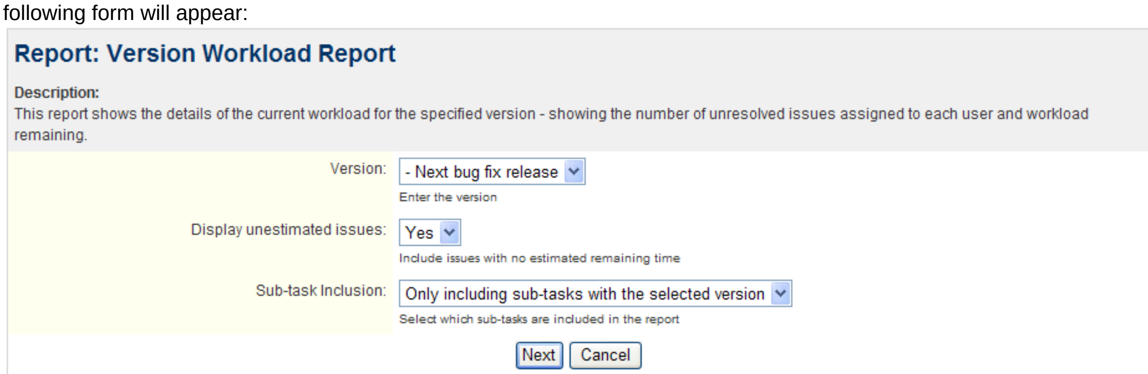
The first table summarises the workload for each user, broken down by issue type, for the specified version.

Following the summary, the report is composed of individual sections for each user --- with workload broken down by issue type. Each individual section begins with the workload total for the specific user. Finally, all unassigned issues (if any exist) are displayed.

Generating a Version Workload Report

To generate a version workload report:

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click '**Version Workload Report**' from the dropdown menu that displays. The following form will appear:



Report: Version Workload Report

Description:
This report shows the details of the current workload for the specified version - showing the number of unresolved issues assigned to each user and workload remaining.

Version: - Next bug fix release
Enter the version

Display unestimated issues: Yes
Include issues with no estimated remaining time

Sub-task Inclusion: Only including sub-tasks with the selected version
Select which sub-tasks are included in the report

Next Cancel

4. In the **'Version'** drop-down list, select the version on which you wish to report. The report will include all issues that belong to this version, that is, all issues whose **'Fix Version'** is this version.
5. In the **'Display unestimated issues'** drop-down list, choose which issues will be included in the report:
   - Select **'Yes'** to show all unresolved issues, regardless of the value of their **'Estimated Time Remaining'** or **'Original Estimate'** fields.
   - Select **'No'** to exclude issues which are not time-tracked (i.e. do not have an **'Original Estimate'** specified).

6. In the **'Sub-task Inclusion'** drop-down list (**note:** this will only appear if sub-tasks are enabled), choose which sub-tasks will be included in the report, for all parent issues that belong to this version:
    - Select **'Only include sub-tasks with the selected version'** to only include an issue's sub-tasks if the sub-tasks belong to the same version as the issue; or
    - Select **'Also include sub-tasks without a version set'** to include an issue's sub-tasks if the sub-tasks belong to either the same version as the issue or to no version; or
    - Select **'Include all sub-tasks'** to include all of an issue's sub-tasks, regardless of whether the sub-tasks belong to the same version, some other version or no version.

Note: sub-tasks which belong to this version, but whose parent issues do not belong to this version, will always be included in the report.

Time Tracking Report

The Time Tracking Report displays useful time tracking information on issues for a particular version of a project. This report shows original and current time estimates for all the issues, and whether they are ahead of or behind the original schedule. (Note: this report is only available if time tracking has been enabled by your JIRA administrator).

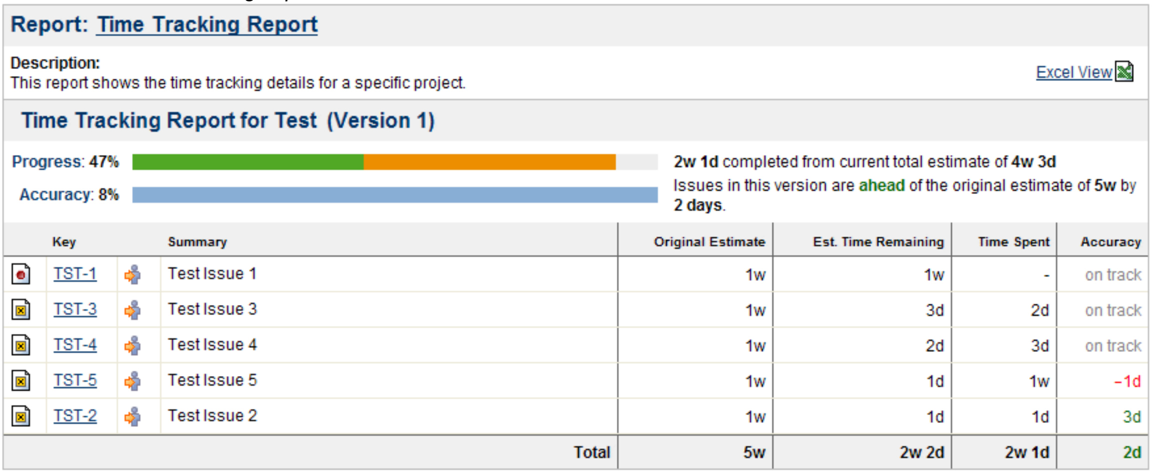
On this page:

- What does the 'Time Tracking' report look like?
- Generating a 'Time Tracking' report
- See Also

What does the 'Time Tracking' report look like?

The report generated will look something like this:

Screenshot: 'Time Tracking' report



Report: Time Tracking Report

Description:
This report shows the time tracking details for a specific project.

Excel View

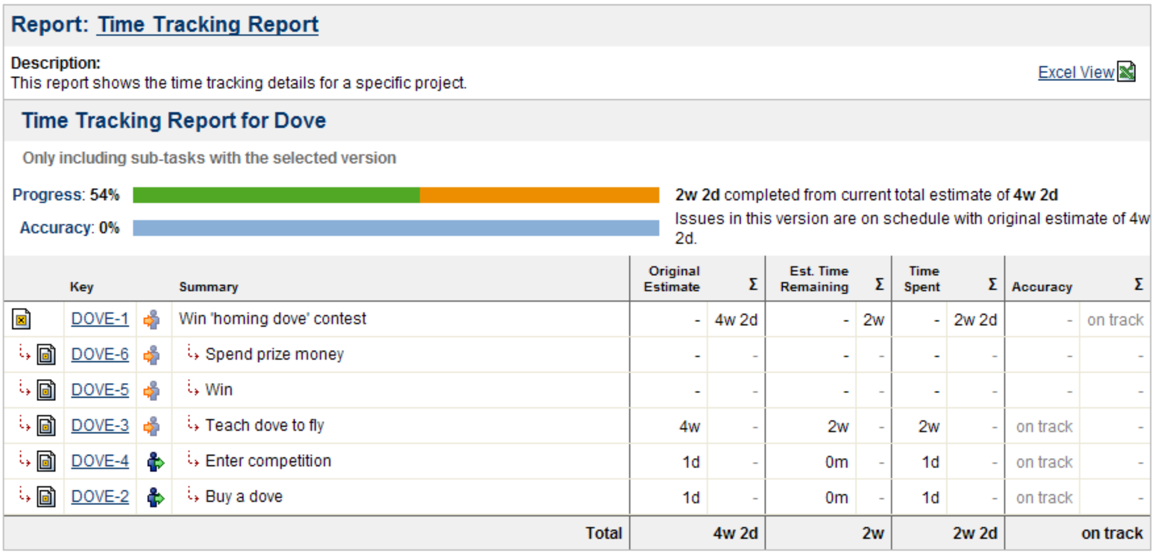
Time Tracking Report for Test (Version 1)

Progress: 47% — **2w 1d** completed from current total estimate of **4w 3d**

Accuracy: 8% — Issues in this version are ahead of the original estimate of **5w** by **2 days**.

Key		Summary	Original Estimate	Est. Time Remaining	Time Spent	Accuracy
TST-1		Test Issue 1	1w	1w	-	on track
TST-3		Test Issue 3	1w	3d	2d	on track
TST-4		Test Issue 4	1w	2d	3d	on track
TST-5		Test Issue 5	1w	1d	1w	-1d
TST-2		Test Issue 2	1w	1d	1d	3d
		Total	**5w**	**2w 2d**	**2w 1d**	**2d**

Or, if sub-tasks are enabled, the report will look something like this:



Report: Time Tracking Report

Description:
This report shows the time tracking details for a specific project.

Excel View

Time Tracking Report for Dove

Only including sub-tasks with the selected version

Progress: 54% — **2w 2d** completed from current total estimate of **4w 2d**

Accuracy: 0% — Issues in this version are on schedule with original estimate of 4w 2d.

Key		Summary	Original Estimate	Σ	Est. Time Remaining	Σ	Time Spent	Σ	Accuracy	Σ
DOVE-1		Win 'homing dove' contest	-	4w 2d	-	2w	-	2w 2d	-	on track
DOVE-6		Spend prize money	-	-	-	-	-	-	-	-
DOVE-5		Win	-	-	-	-	-	-	-	-
DOVE-3		Teach dove to fly	4w	-	2w	-	2w	-	on track	-
DOVE-4		Enter competition	1d	-	0m	-	1d	-	on track	-
DOVE-2		Buy a dove	1d	-	0m	-	1d	-	on track	-
		Total		**4w 2d**		**2w**		**2w 2d**		**on track**

The table in the report shows the issues within the version:

- There are four time tracking fields as follows:
    - **Original Estimate** - The original estimate of the total amount of time it would take to complete this issue.
    - **Estimated Time Remaining** - The current estimate of the remaining amount of time it would take to complete this issue.

    - **Time Spent** - The amount of time spent on the issue. This is the aggregate amount of time which has been logged against this issue.
    - **Accuracy**- The accuracy of the original estimate compared to the current estimate for the issue. It is the difference between the sum of the **Time Spent** and **Estimated Time Remaining** fields, and the **Original Estimate** field.
- If sub-tasks are enabled, the *"*column at the right of the field shows the aggregate time tracking information for each 'parent' issue (i.e. the sum of the issue's own values plus those of its sub-tasks).
- The last line of the table shows the aggregate time tracking information for the whole version.

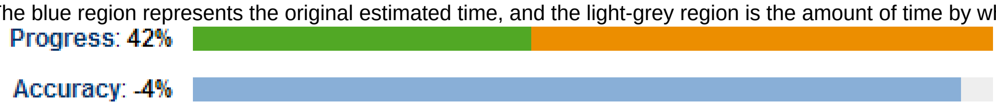
The report also includes two bar-graphs (above the table) which represent the aggregate time tracking information for the version:

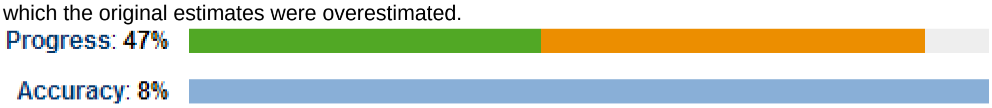
- The first bar-graph **('Progress')** shows the percentage of completed issues (green) and incomplete issues (orange) in this version:


- The second bar-graph **('Accuracy'** -blue) shows the accuracy of the original estimates.

The length of the **Accuracy** bar compared to the **Progress** bar indicates whether the issues in this version are ahead of or behind schedule. There are three cases:

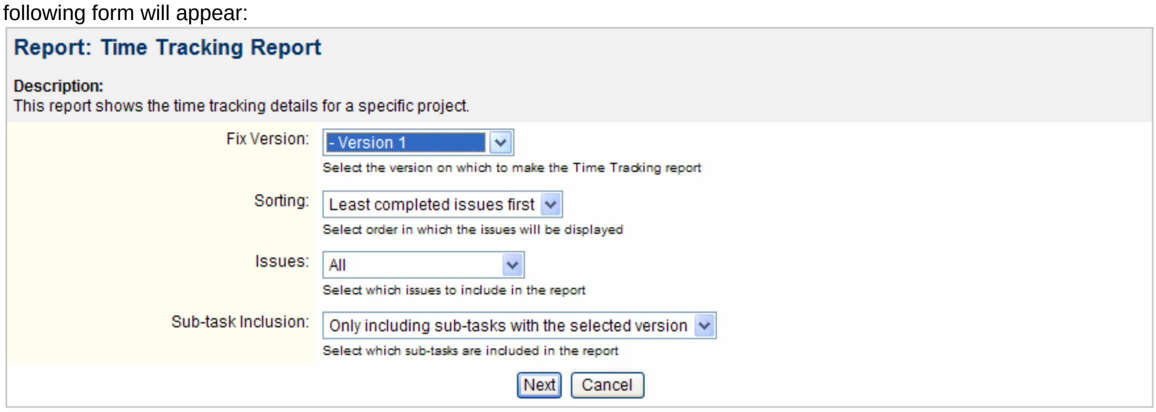
1. *The issues are on schedule with the original estimate.* The **Accuracy** bar is completely blue and is the same length as the **Progress** bar above it.


2. *The issues are behind the original estimate (i.e. will take longer than originally estimated).* The **Progress** graph is longer than the **Accuracy**graph. The blue region represents the original estimated time, and the light-grey region is the amount of time by which issues are behind.


3. *The issues are ahead of the original estimate (i.e. will take less time than originally estimated).* The **Accuracy** graph is longer than the **Progress**graph. The blue bar represents the original estimated time, and the light-grey region represents the amount of time by which the original estimates were overestimated.


Generating a 'Time Tracking' report

To generate a Time Tracking Report:

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
__Tip:__ If you click on the '__Projects__' link instead of the triangle, the summary for your current project will display.
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click '**Time Tracking Report**' from the dropdown menu that displays. The following form will appear:

Report: Time Tracking Report
Description:
This report shows the time tracking details for a specific project.
Fix Version: - Version 1
Select the version on which to make the Time Tracking report
Sorting: Least completed issues first
Select order in which the issues will be displayed
Issues: All
Select which issues to include in the report
Sub-task Inclusion: Only including sub-tasks with the selected version
Select which sub-tasks are included in the report
Next Cancel
4. In the **'Version'** drop-down list, select the version on which you wish to report. The report will include all issues that belong to this version, that is, all issues whose **'Fix Version'** is this version.
5. In the **'Sorting'** drop-down list, choose how the issues in the report will be sorted:
    - Select **'Least completed issues first'** to show issues with the highest **'Estimated Time Remaining** first; or
    - Select **'Most completed issues first'** to show issues with the lowest **'Estimated Time Remaining** first.
6. In the **'Issues'** drop-down list, choose which issues will be included in the report:
    - Select **'All'** to include all issues assigned to this version; or
    - Select **'Incomplete issues only'** to exclude issues which are either completed (i.e. have an **'Estimated Time Remaining'** of zero), or are not time-tracked (i.e. do not have an **'Original Estimate').** Note that issue status does not affect which issues are displayed.
7. In the **'Sub-task Inclusion'** drop-down list *(note: this will only appear if sub-tasks are enabled),* choose which sub-tasks will be included in the report, for all parent issues that belong to this version:
    - Select **'Only include sub-tasks with the selected version'** to only include an issue's sub-tasks if the sub-tasks belong to the same version as the issue; or
    - Select **'Also include sub-tasks without a version set'** to include an issue's sub-tasks if the sub-tasks belong to either the same version as the issue or to no version; or

- Select **'Include all sub-tasks'** to include all of an issue's sub-tasks, regardless of whether the sub-tasks belong to the same version, some other version or no version.Note: sub-tasks which belong to this version, but whose parent issues do *not* belong to this version, will always be included in the report.

See Also

- In addition to the built-in JIRA reports, other reports (e.g. Gantt Chart Report, Timesheet Report) are available for download from the Atlassian Plugin Exchange and the JIRA Extensions site. JIRA administrators can also create new reports with the plugin API — see How to create a JIRA Report.
- You may also find the Dashboard Gadgets useful, e.g. the Two-Dimensional Filter Statistics Gadget displays statistical data based on a specified issue filter, in a configurable table format.

Single Level Group By Report

The 'Single Level Group By' report displays issues returned from a specified issue filter of your choice, grouped by a specified field. For example, an issue filter can be created to retrieve all open issues for a particular version of a particular project. The 'Single Level Group By' report can then be used to display these issues grouped by a specified field (e.g. Assignee).

On this page:

- What does the 'Single Level Group By' report look like?
- Generating a 'Single Level Group By' report
- Related Topics

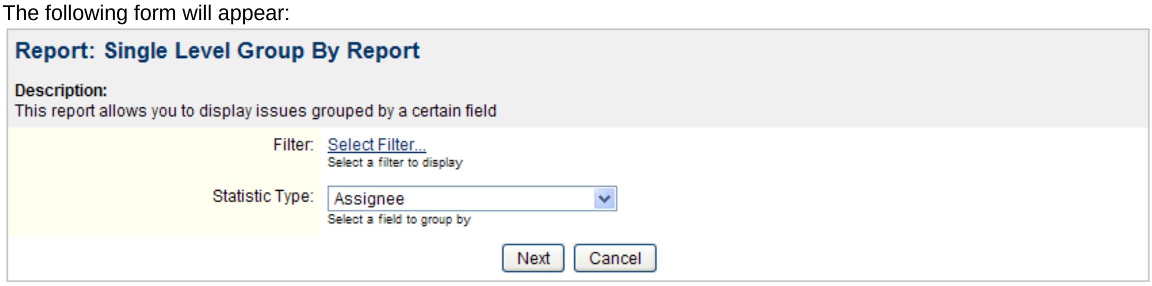
What does the 'Single Level Group By' report look like?

The report generated will look something like this:

Screenshot: 'Single Level Group By' report

The report displays the issues returned by the specified filter, grouped by the specified field.

Generating a 'Single Level Group By' report

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click '**Single Level Group By Report**' from the dropdown menu that displays. The following form will appear:
   

4. Click **'Select Filter...'.**

5. The popup **Filter Picker** will appear. Select the issue filter. You will then be returned to the form.
6. In the **'Statistic Type'** field, select the field by which the report will group the issues returned from your chosen issue filter.

Related Topics

The following gadgets can be added to your dashboard to display similar information to the 'Single Level Group By' report:

- Filter Results Gadget
- Issue Statistics Gadget
- Two-Dimensional Filter Statistics Gadget

Created vs Resolved Issues Report

The 'Created vs Resolved Issues' report is a difference chart showing the number of issues created vs number of issues resolved over a given period of time. The report is based on your choice of project or issue filter, and the chart can either be cumulative or not.

On this page:

- What does the 'Created vs Resolved Issues' report look like?
- Generating a 'Created vs Resolved Issues' report
- Configuring your Internet Explorer cache settings

What does the 'Created vs Resolved Issues' report look like?

The report generated will look something like this:

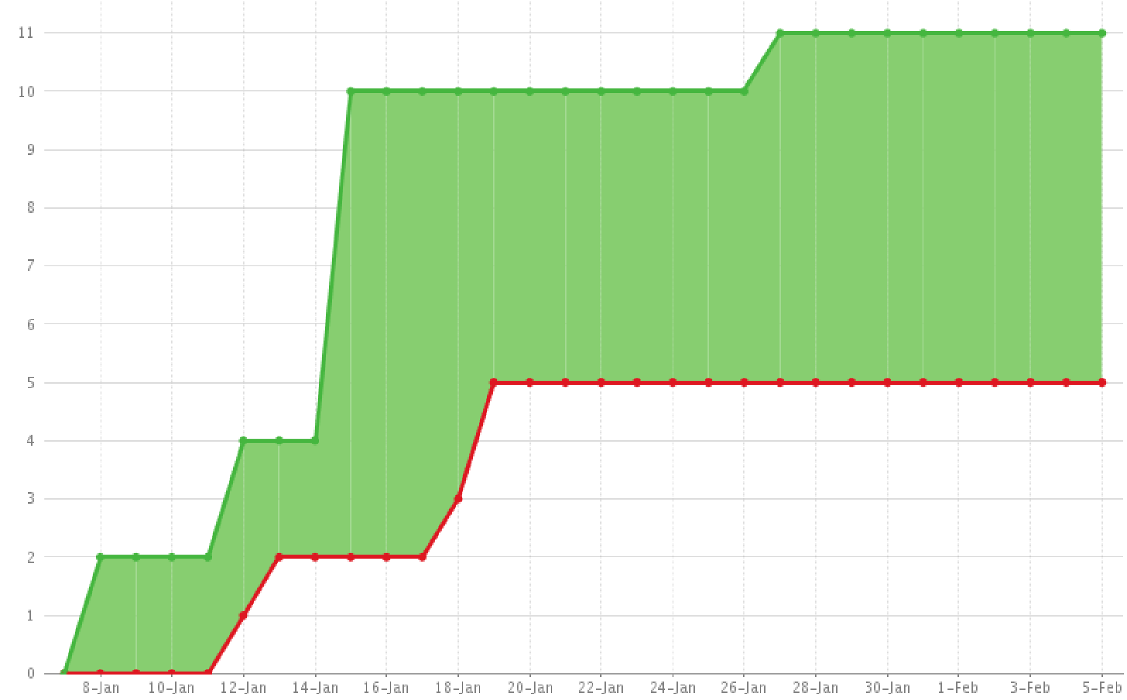
Screenshot: 'Created vs Resolved Issues' report

Report: Created vs Resolved Issues Report

Project: Book Request

Chart

This chart shows the number of issues created vs the number of issues resolved in the last **30** days.



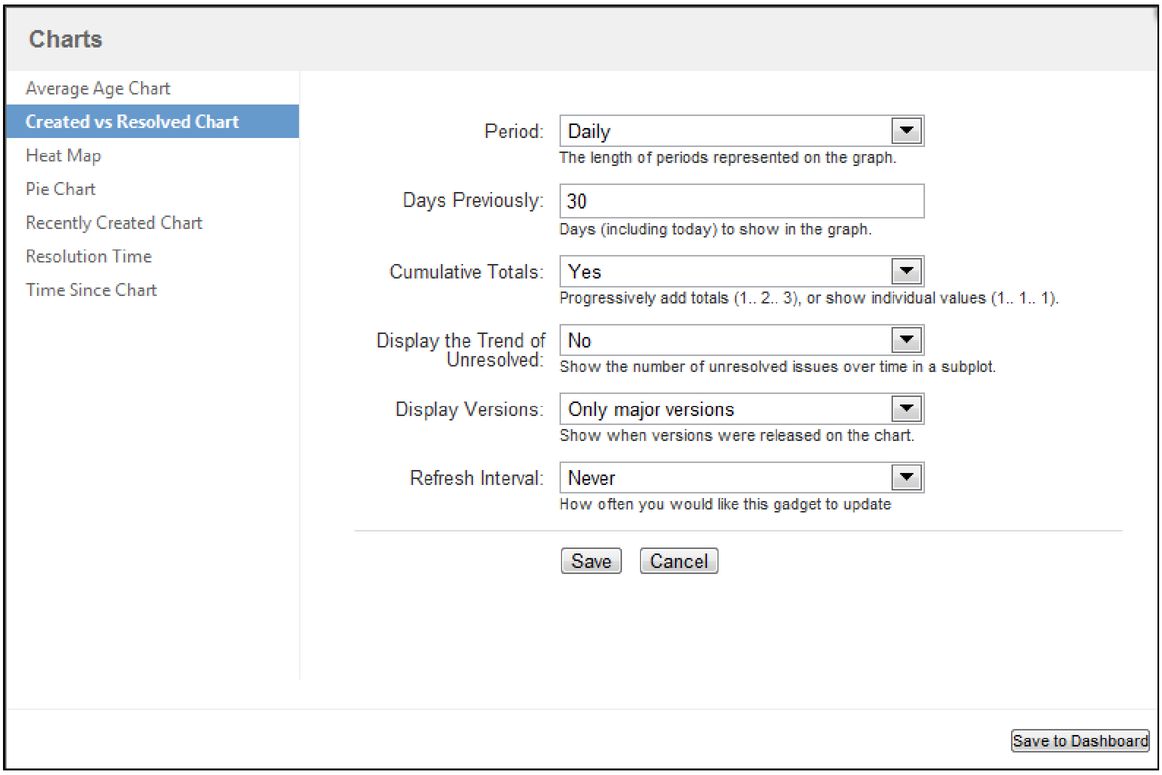
Data Table

Period	Created	Resolved
7-January-2009	0	0
8-January-2009	0	2
9-January-2009	0	0
10-January-2009	0	0
11-January-2009	0	0
12-January-2009	1	2
13-January-2009	1	0
14-January-2009	0	0
15-January-2009	0	6
16-January-2009	0	0

Areas in red show periods where more issues were created than resolved. Areas in green show periods where more were resolved than created.

Generating a 'Created vs Resolved Issues' report

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click **'Created vs Resolved Issues Report'** from the dropdown menu that displays. The following form will appear:

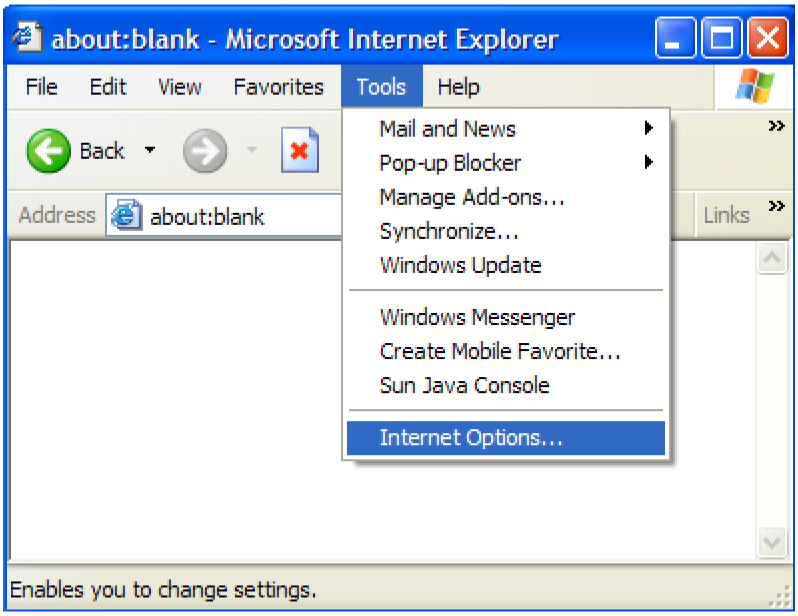


4. Click **'Select Filter or Project'.**
5. The popup **Filter or Project Picker** will appear. Select the project, or issue filter, in which you are interested. You will then be returned to the form.
6. In the **'Period'** field, select the timeframe on which the report will be based:
    - **'Hourly'**
    - **'Daily'**
    - **'Weekly'**
    - **'Quarterly'**
    - **'Yearly'**
7. In the **'Days Previously'** field, enter the number of days' worth of data (counting backwards from today) to be included in the report.
8. In the **'Cumulative Totals?'** field, choose either:
    - **'Yes'** to progressively add data to the preceding column; or
    - **'No'** to show just a single value in each column.
9. In the **'Display the trend of Unreserved'** field, choose either:
    - **'Yes'** to show the number of unresolved issues over time in a subplot; or
    - **'No'** otherwise.
10. In the **'Display Versions?'** field, choose either:
    - **'All versions'** to show version release dates on the chart, for all released versions; or
    - **'Only major versions'** to show version release dates on the chart, for released versions that are named 'x.x' only; or
    - **'None'** to not show version release dates on the chart.

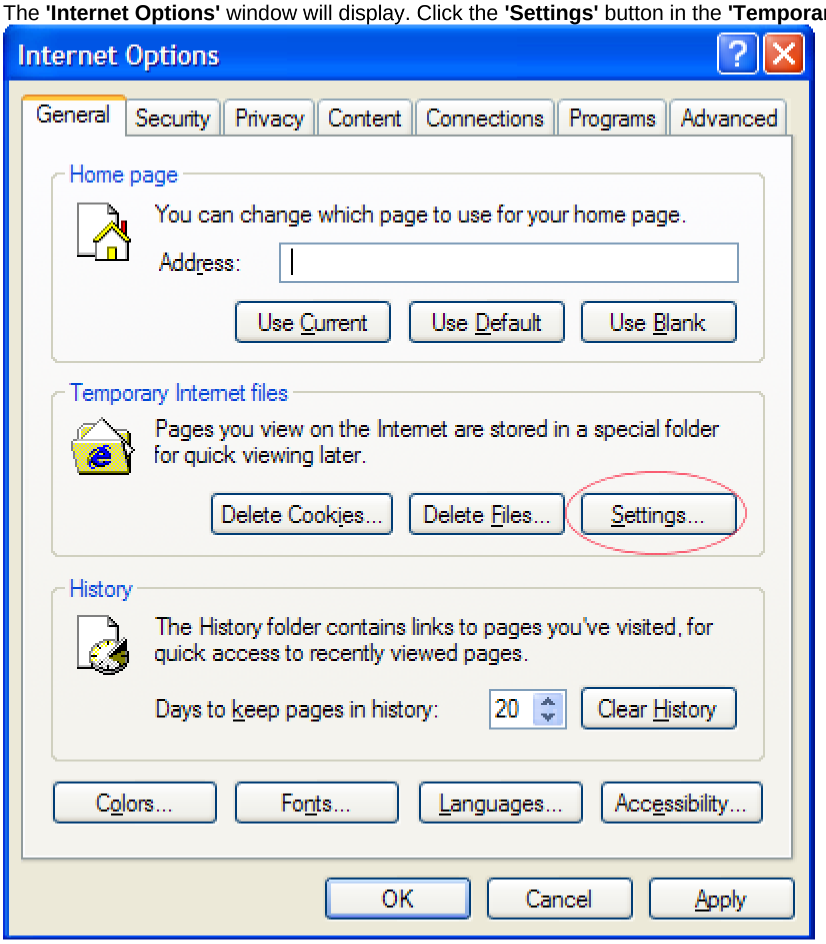
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

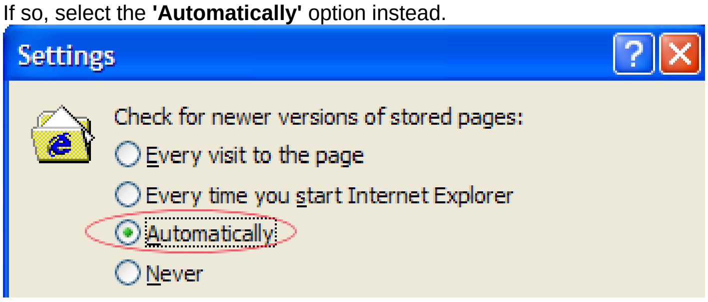
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Resolution Time Report

The 'Resolution Time' report is a bar chart showing the average time taken to resolve issues. This is useful to show you the trends in resolution time. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

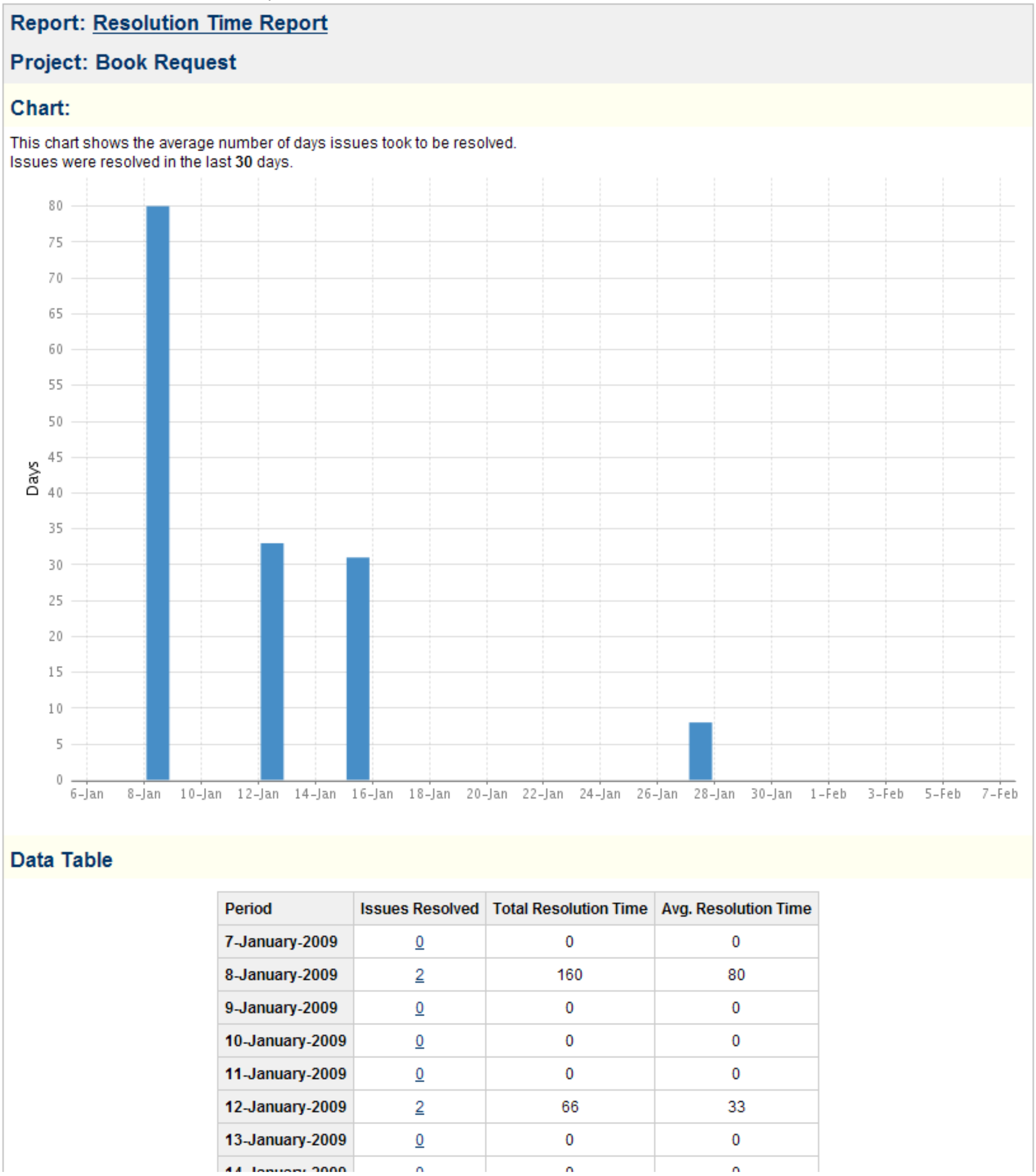
On this page:

- What does the 'Resolution Time' report look like?
- Generating a 'Resolution Time' report
- Configuring your Internet Explorer cache settings

What does the 'Resolution Time' report look like?

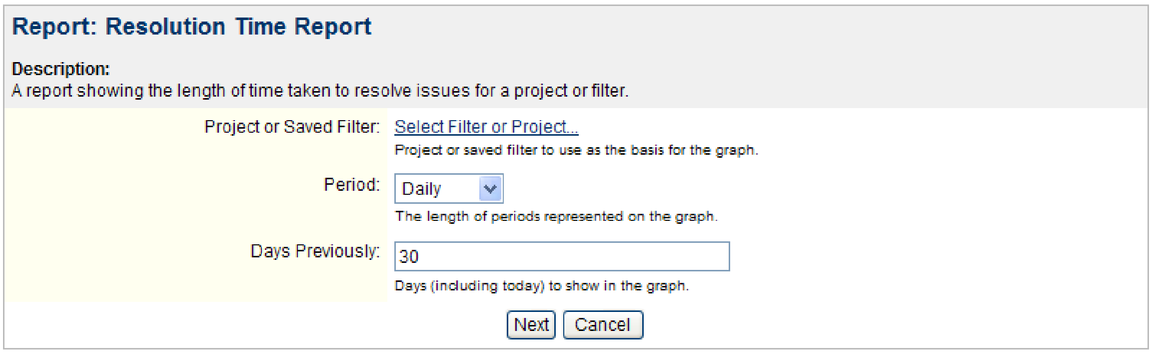
The report generated will look something like this:

Screenshot 'Resolution Time' report:



Generating a 'Resolution Time' report

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   ✅ ***Tip:*** *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click **'Resolution Time Report'** from the dropdown menu that displays. The following form will appear:

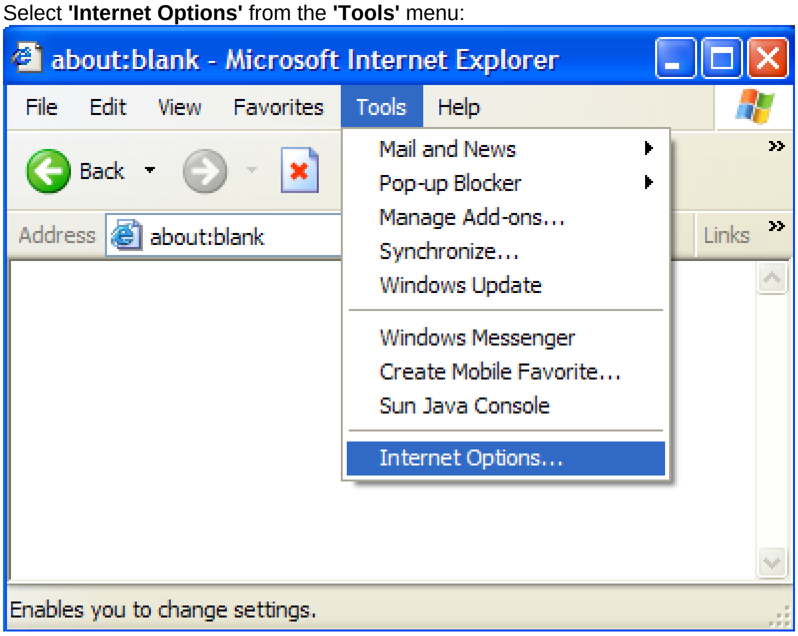


4. Click **'Select Filter or Project'.**
5. The popup **Filter or Project Picker** will appear. Select the project, or issue filter, in which you are interested. You will then be returned to the form.
6. In the **'Period'** field, select the timeframe on which the report will be based:
    - **'Hourly'**
    - **'Daily'**
    - **'Weekly'**
    - **'Quarterly'**
    - **'Yearly'**
7. In the **'Days Previously'** field, enter the number of days' worth of data (counting backwards from today) to be included in the report.

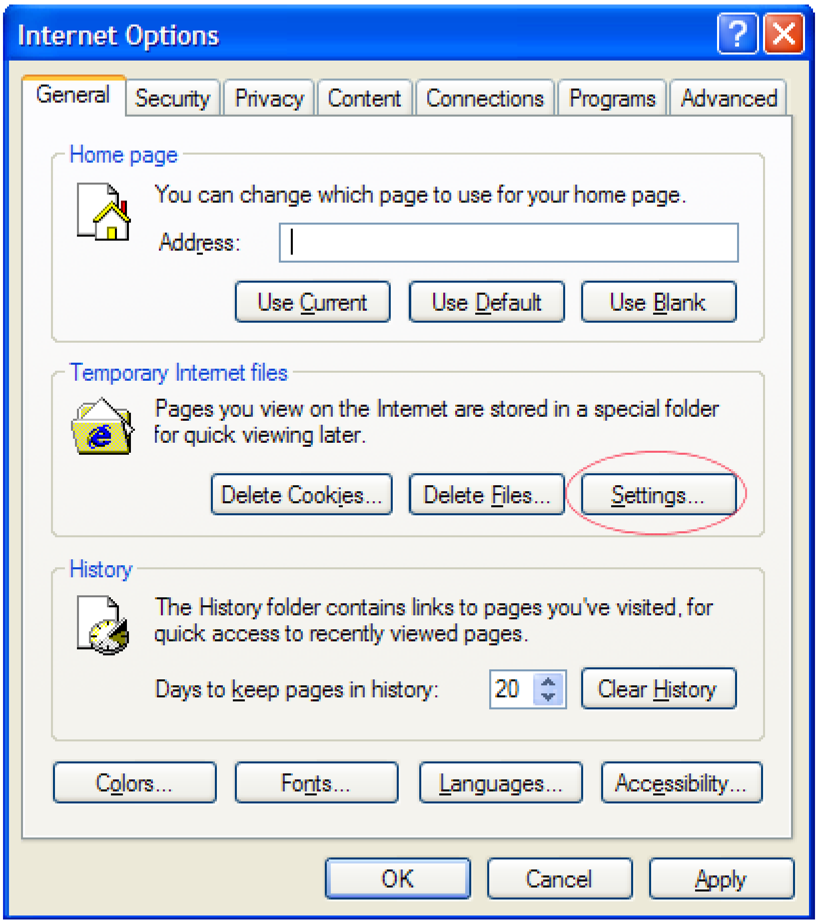
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

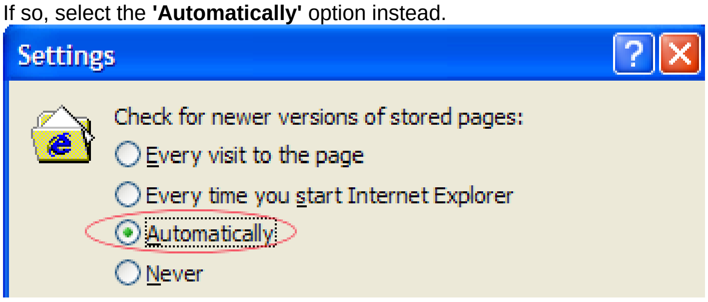
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Pie Chart Report

The 'Pie Chart' report displays issues returned from a specified project or issue filter, grouped by a specified field. For example, an issue filter can be created to retrieve all open issues for a particular version of a particular project. The 'Pie Chart' report can then be used to display these issues grouped by a specified field (e.g. Assignee).

On this page:

- What does the 'Pie Chart' report look like?
- Generating a 'Pie Chart' report
- Configuring your Internet Explorer cache settings

What does the 'Pie Chart' report look like?

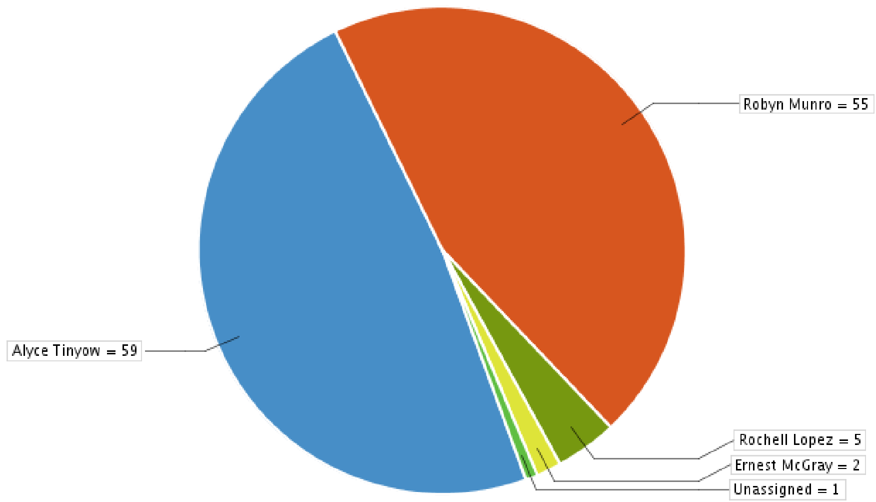
The report generated will look something like this:

Screenshot: 'Pie Chart' report

Report: Pie Chart Report

Project: Book Request (Assignee)

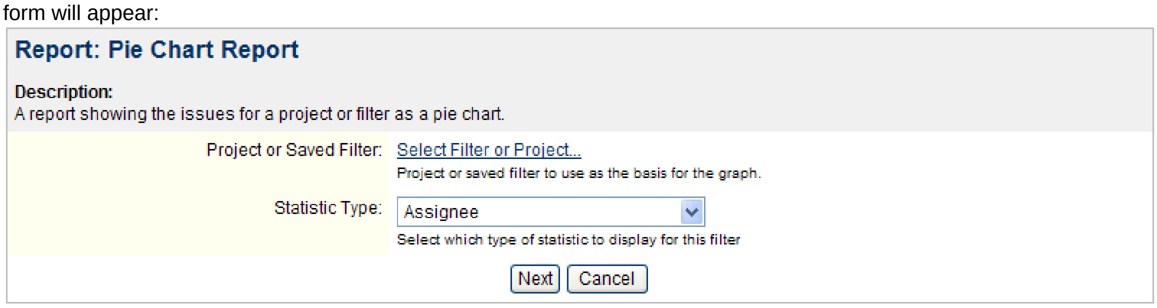
Chart



Data Table

	Issues	%
Alyce Tinyow	59	48%
Robyn Munro	55	45%
Rochell Lopez	5	4%
Ernest McGray	2	1%
Unassigned	1	0%

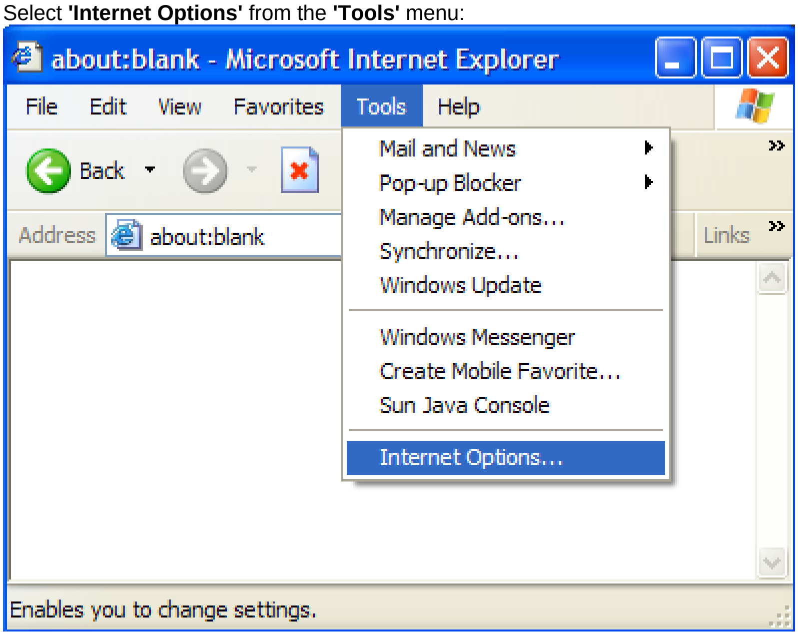
Generating a 'Pie Chart' report

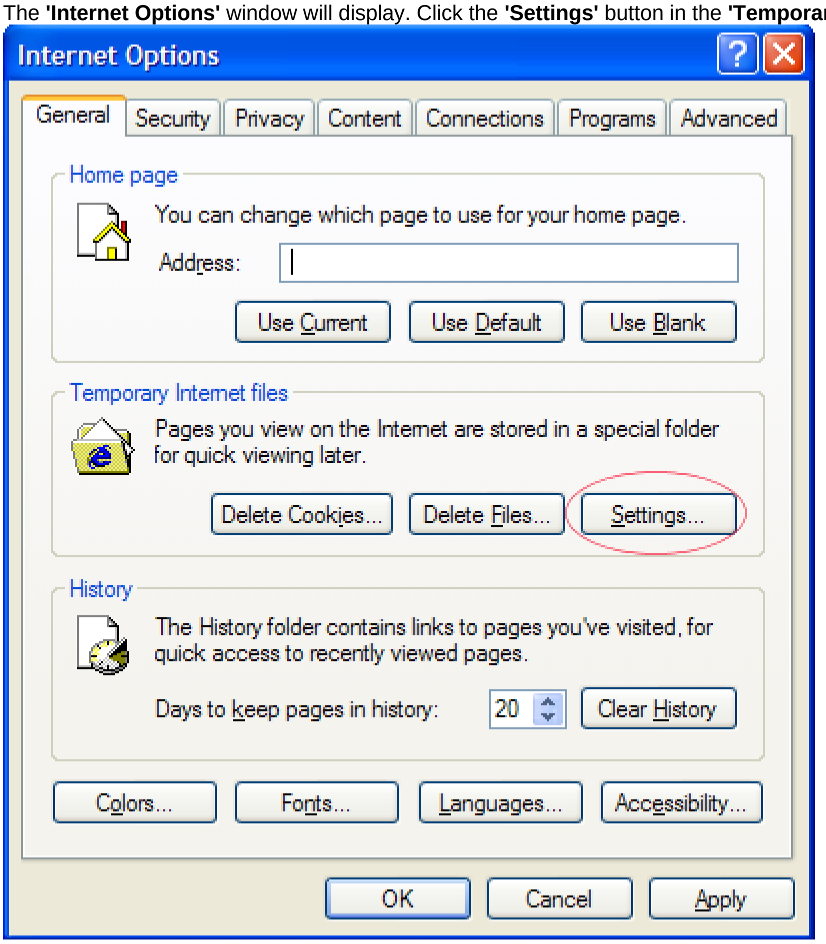
1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click **'Pie Chart Report'** from the dropdown menu that displays. The following form will appear:
   

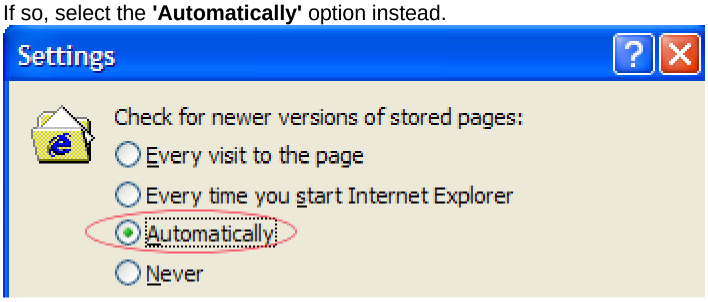
4. Click **'Select Filter or Project'.**
5. The popup **Filter or Project Picker** will appear. Select the project, or issue filter, in which you are interested. You will then be returned to the form.
6. In the **'Statistic Type'** field, select the field on which the pie chart will be based. (Note that you can choose only fields which have finite values).

Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

1. Select **'Internet Options'** from the **'Tools'** menu:


2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:


3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.


Average Age Report

The 'Average Age' report is a bar chart showing the average age (in days) of unresolved issues at given points in time. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

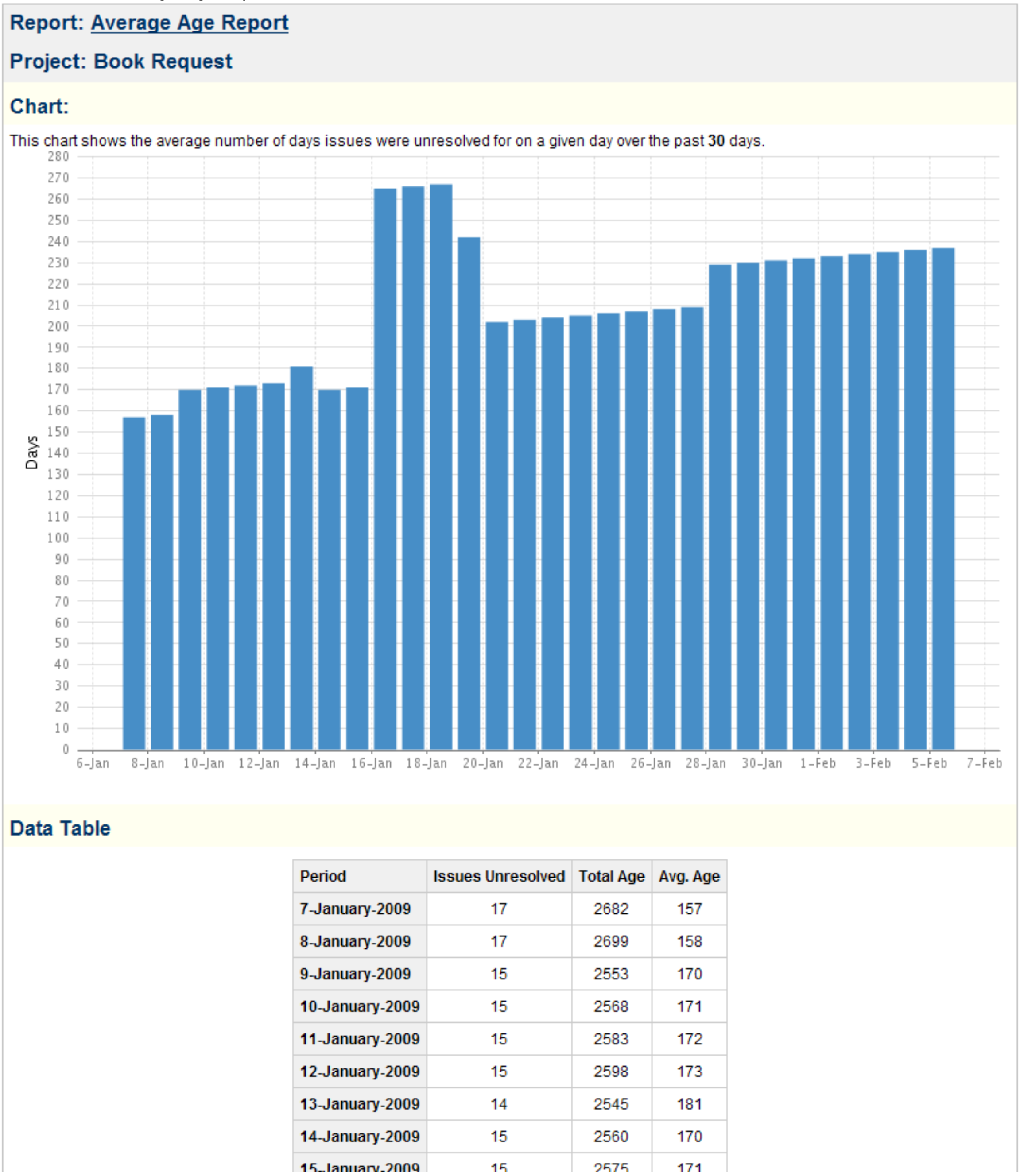
On this page:

- What does the 'Average Age' report look like?
- Generating an 'Average Age' report
- Configuring your Internet Explorer cache settings

What does the 'Average Age' report look like?

The report generated will look something like this:

Screenshot: 'Average Age' report

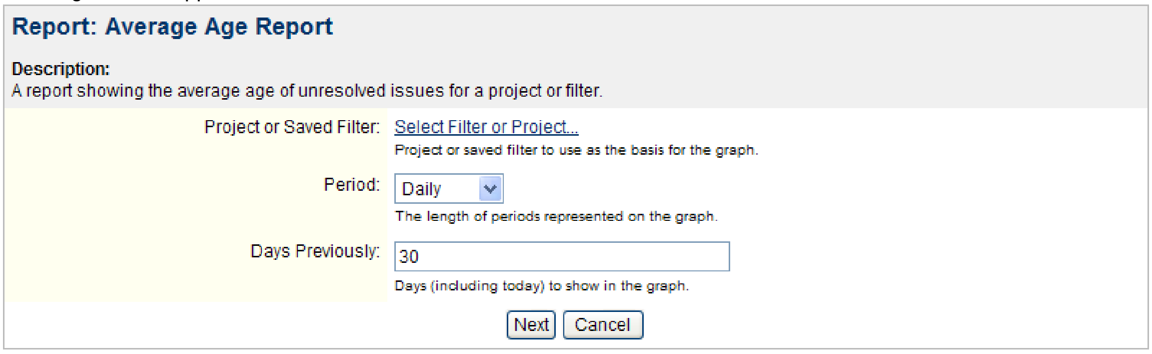


Period	Issues Unresolved	Total Age	Avg. Age
7-January-2009	17	2682	157
8-January-2009	17	2699	158
9-January-2009	15	2553	170
10-January-2009	15	2568	171
11-January-2009	15	2583	172
12-January-2009	15	2598	173
13-January-2009	14	2545	181
14-January-2009	15	2560	170
15-January-2009	15	2575	171

Generating an 'Average Age' report

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click **'Average Age Report'** from the dropdown menu that displays. The

following form will appear:

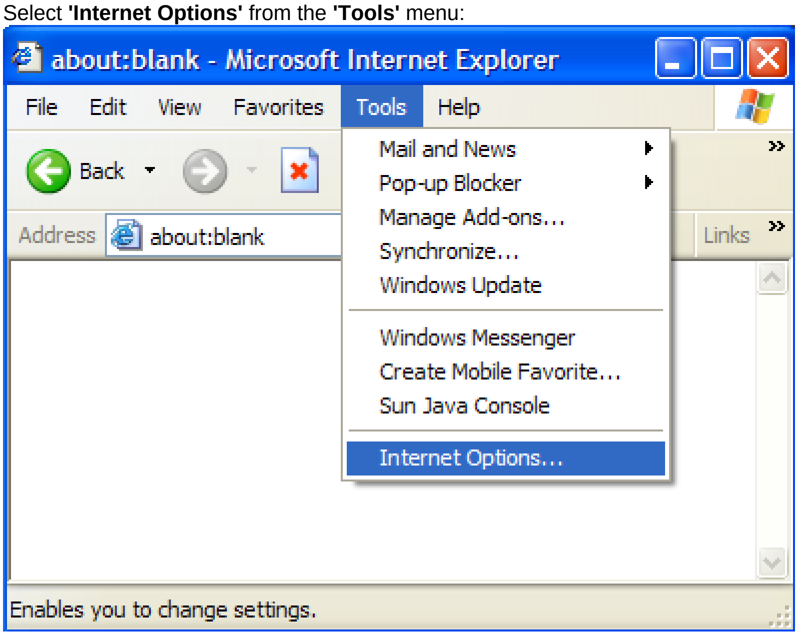


4. Click **'Select Filter or Project'.**
5. The popup **Filter or Project Picker** will appear. Select the project, or issue filter, in which you are interested. You will then be returned to the form.
6. In the **'Period'** field, select the timeframe on which the report will be based:
   - **'Hourly'**
   - **'Daily'**
   - **'Weekly'**
   - **'Quarterly'**
   - **'Yearly'**
7. In the **'Days Previously'** field, enter the number of days' worth of data (counting backwards from today) to be included in the report.

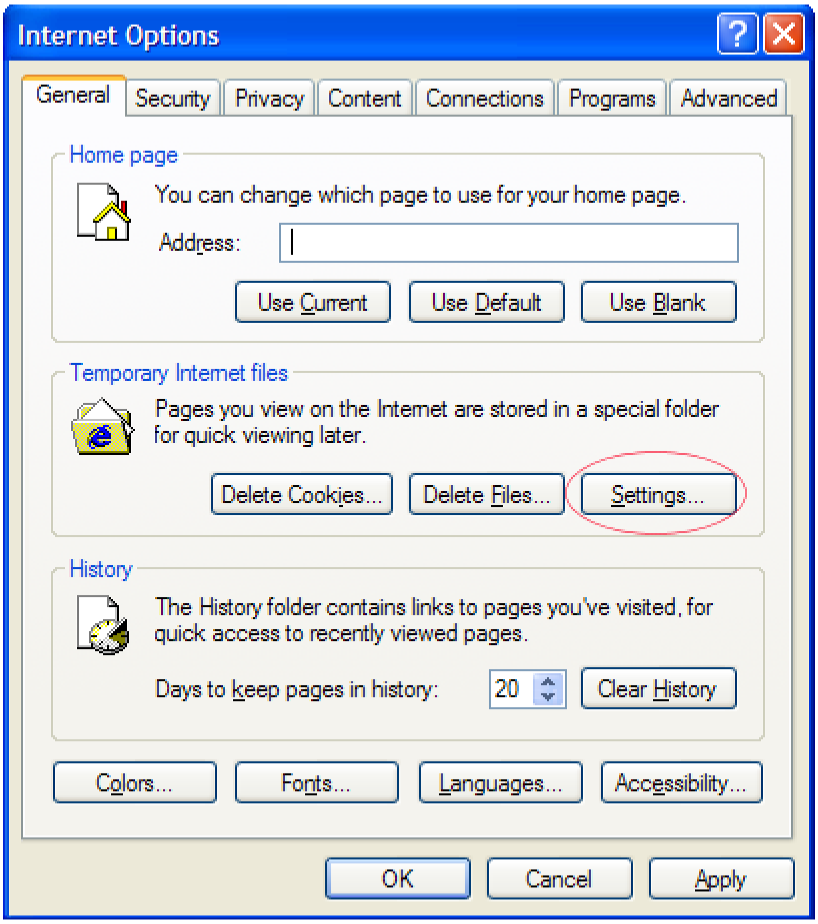
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

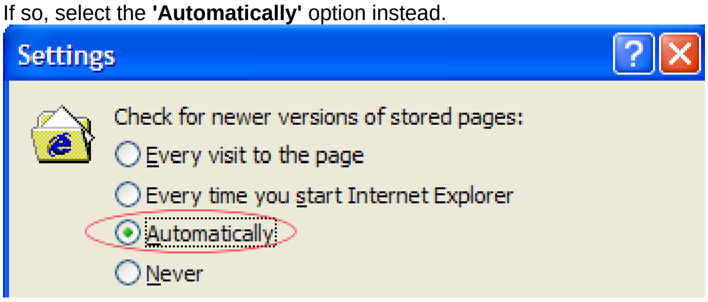
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Recently Created Issues Report

The 'Recently Created Issues' report is a bar chart showing the rate at which issues are being created, as well as how many of those created issues are resolved. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

On this page:

- What does the 'Recently Created Issues' report look like?
- Generating a 'Recently Created Issues' report
- Configuring your Internet Explorer cache settings

What does the 'Recently Created Issues' report look like?

The report generated will look something like this:

Screenshot: 'Recently Created Issues' report

Report: Recently Created Issues Report

Project: SysAdmin

Chart

This chart shows the issues created in the last **30** days

Data Table

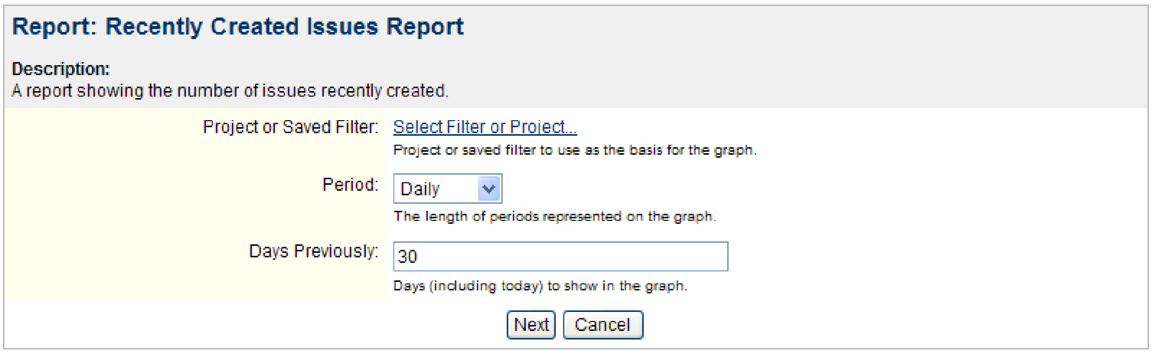
Period	Created Issues (Unresolved)	Created Issues (Resolved)
11-January-2009	4	2
12-January-2009	0	12
13-January-2009	1	10
14-January-2009	0	8
15-January-2009	0	6
16-January-2009	1	1
17-January-2009	0	1
18-January-2009	0	0
19-January-2009	1	8
20-January-2009	0	2

The green portion of the bar shows the created issues which are resolved. The red portion shows created but as yet unresolved issues.

Generating a 'Recently Created Issues' report

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.

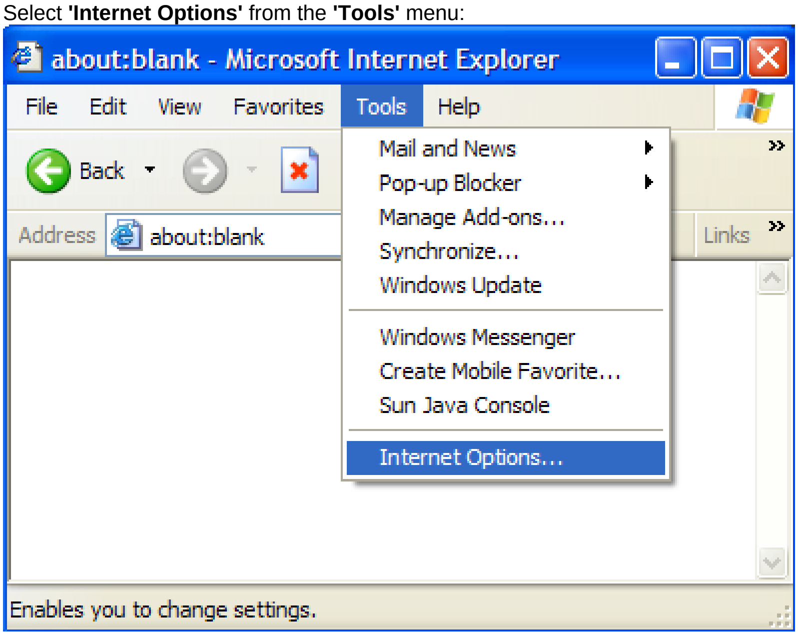
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click **'Recently Created Issues Report'** from the dropdown menu that displays. The following form will appear:



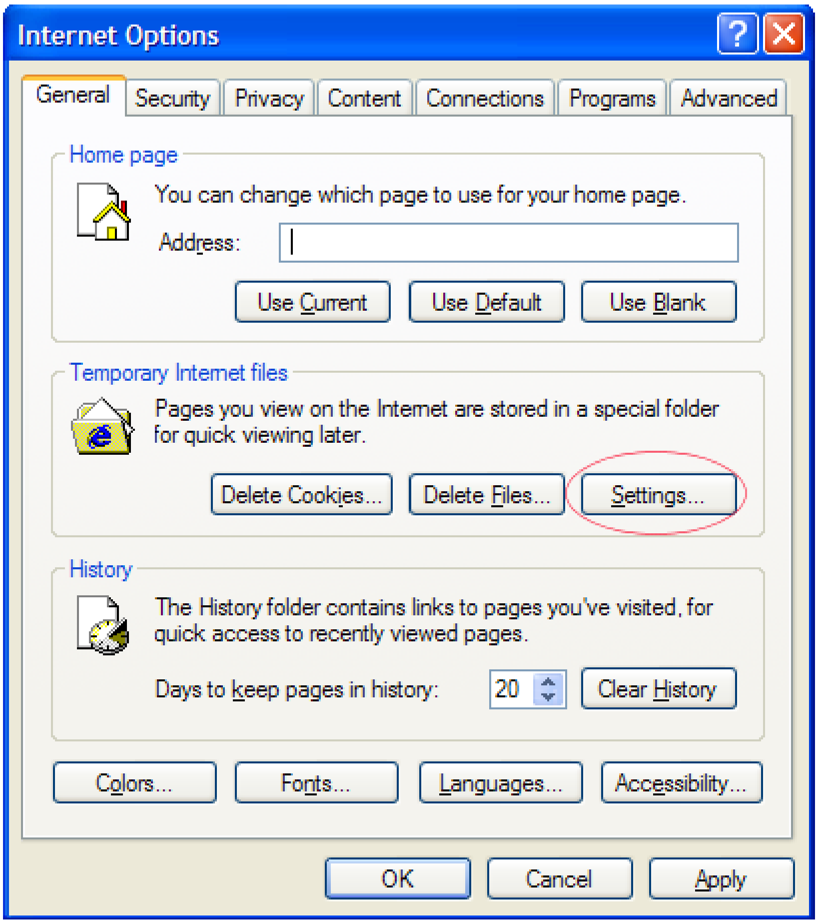
4. Click **'Select Filter or Project'.**
5. The popup **Filter or Project Picker** will appear. Select the project, or issue filter, in which you are interested. You will then be returned to the form.
6. In the **'Period'** field, select the timeframe on which the report will be based:
    - **'Hourly'**
    - **'Daily'**
    - **'Weekly'**
    - **'Quarterly'**
    - **'Yearly'**
7. In the **'Days Previously'** field, enter the number of days' worth of data (counting backwards from today) to be included in the report.

Configuring your Internet Explorer cache settings

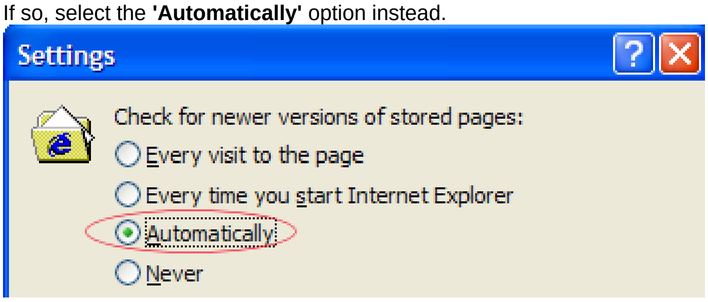
If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

1. Select **'Internet Options'** from the **'Tools'** menu:


2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Time Since Issues Report

The 'Time Since Issues' report is a bar chart showing the number of issues for which your chosen date field (e.g. 'Created', 'Updated', 'Due', 'Resolved', or a custom field) was set on a given date. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

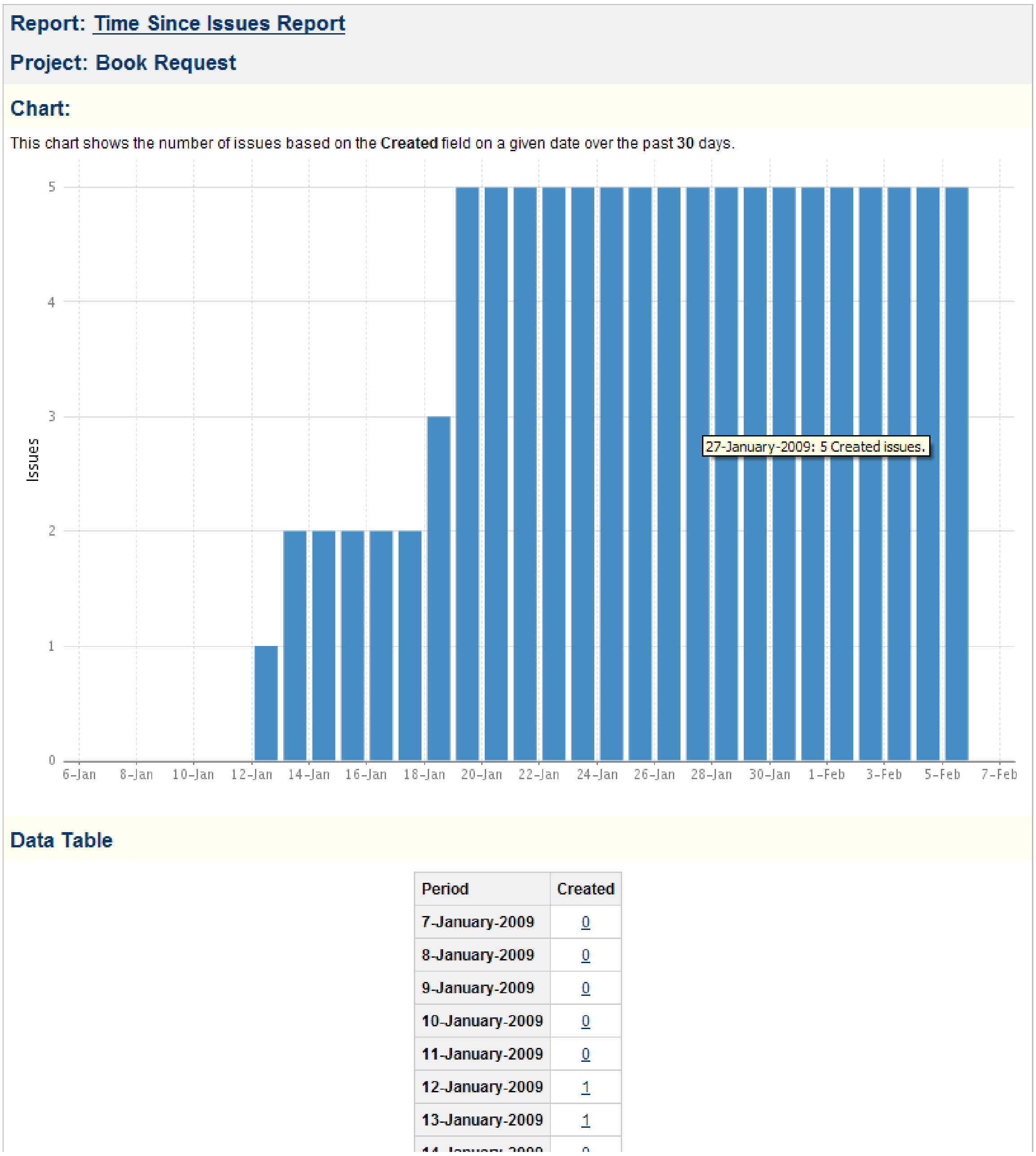
On this page:

- What does the 'Time Since Issues' report look like?
- Generating a 'Time Since Issues' report
- Configuring your Internet Explorer cache settings

What does the 'Time Since Issues' report look like?

The report generated will look something like this:

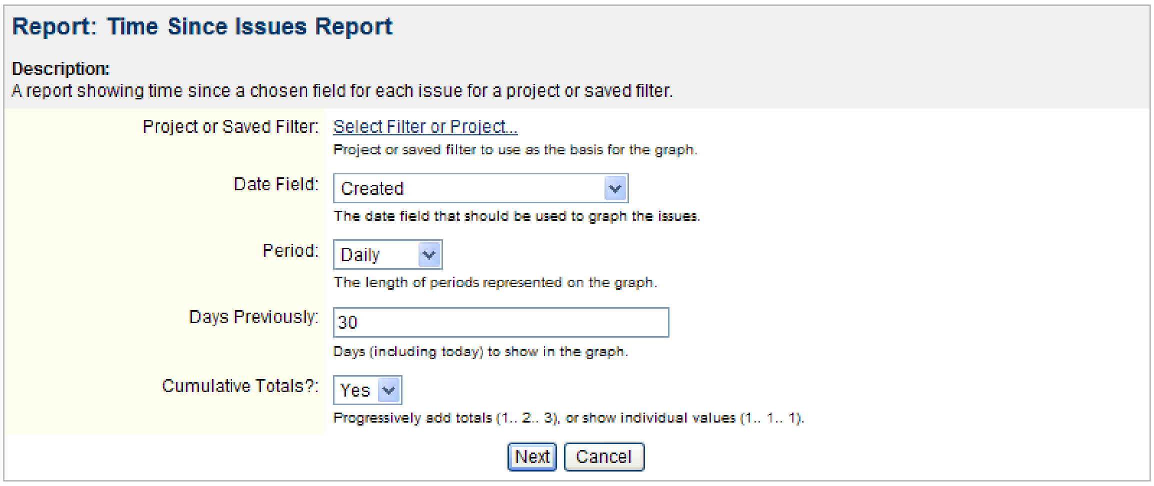
Screenshot: 'Time Since Issues' report



Period	Created
7-January-2009	0
8-January-2009	0
9-January-2009	0
10-January-2009	0
11-January-2009	0
12-January-2009	1
13-January-2009	1

Generating a 'Time Since Issues' report

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there. (The choice of project will not affect the report.)
3. Click the **'Reports'** menu on the right of the page and click **'Time Since Issues Report'** from the dropdown menu that displays. The following form will appear:

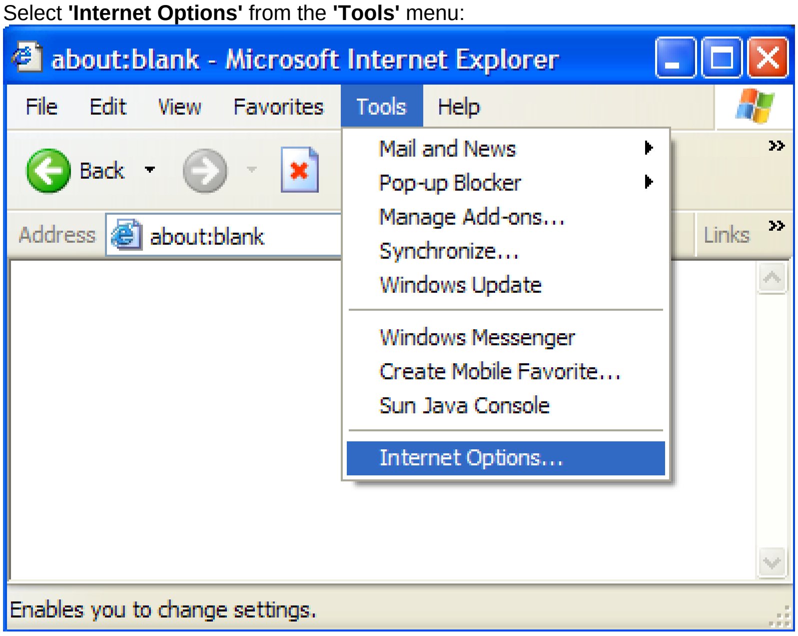


4. Click **'Select Filter or Project'.**
5. The popup **Filter or Project Picker** will appear. Select the project, or issue filter, in which you are interested. You will then be returned to the form.
6. In the **'Date Field'** field, select the date in which you are interested (e.g. **'Created', 'Updated', 'Due' , *'Resolved',** or a custom field of type 'Date').
   *Note: only available if time tracking has been enabled by your JIRA administrator.
7. In the **'Period'** field, select the timeframe on which the report will be based:
   - **'Hourly'**
   - **'Daily'**
   - **'Weekly'**
   - **'Quarterly'**
   - **'Yearly'**
8. In the **'Days Previously'** field, enter the number of days' worth of data (counting backwards from today) to be included in the report.
9. In the **'Cumulative Totals?'** field, choose either:
   - **'Yes'** to progressively add data to the preceding column; or
   - **'No'** to show just a single value in each column.

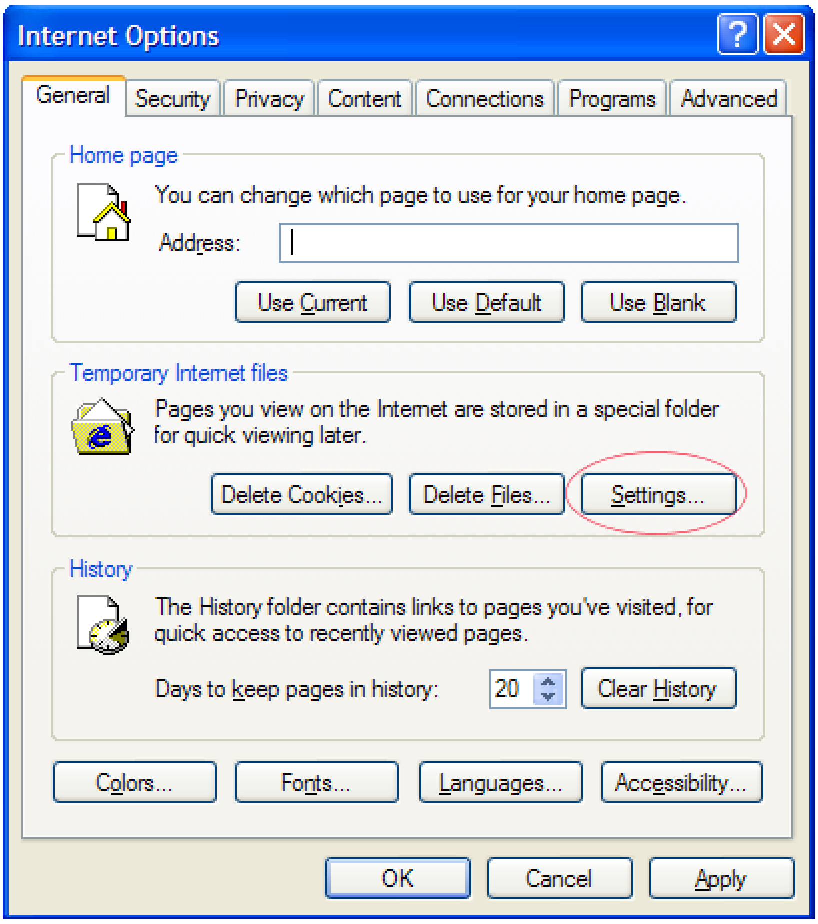
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

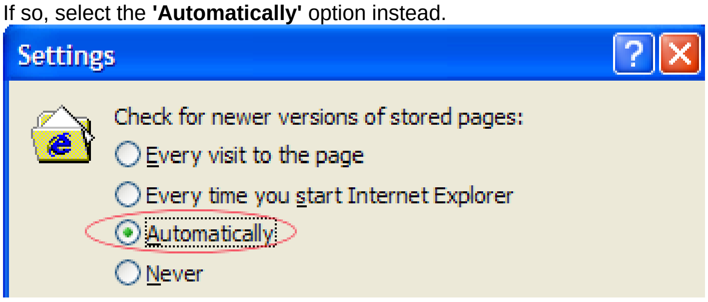
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Browsing a Project

The project browser screen allows you to browse a project or its components or versions, the latter of which shows you summaries of your project's progress.

This screen provides a general overview of your project, with a variety of easily accessible reports for your project's issues, builds and source code reviews, from which you can 'dig down' into further detail.

From the project browser screen, you can browse the following:

- **Project:**
  - Summary — Shows recent activity in your project, plus a list of issues that are due soon.
  - Issues — Shows a summary of all issues in a project grouped by Status. Also shows summaries of all unresolved issues, grouped by Assignee, Priority, Version and Component.
  - Road Map — Shows unresolved issues for upcoming versions of a project.
  - Change Log — Shows resolved issues for previous versions of a project.
  - Popular Issues — Shows a project's unresolved issues, ordered by popularity (votes).
  - Versions * — Shows a summary of recent versions for a given project.
  - Components * — Shows a summary of all components for a given project.
  - Builds * — Shows recent Bamboo builds for a given project.
  - Source ** — Shows recent FishEye changesets for a given project.
  - Reviews ** — Shows recent Crucible code for a given project.

- **Version:**
  - Version Summary — Shows recent activity in a given version of a project, plus a list of issues that are due soon.
  - Version Issues — Shows issues belonging to a given version of a project.
  - Version Popular Issues — Shows unresolved issues for a given version, ordered by popularity (votes).

- Version Builds * — Shows recent Bamboo builds for a given version.

- **Component:**
  - Component Summary — Shows recent activity in a given component of a project, plus a list of issues that are due soon.
  - Component Issues — Shows issues belonging to a given component of a project.
  - Component Road Map — Shows unresolved issues for a given component, for upcoming versions of the project.
  - Component Change Log — Shows resolved issues for a given component, for previous versions of the project.
  - Component Popular Issues — Shows unresolved issues for a given component, ordered by popularity (votes).

** Only available if your organisation uses Atlassian Bamboo and your administrator has integrated Bamboo with JIRA.*

*** Only available if your organisation uses Atlassian FishEye and your administrator has integrated FishEye with JIRA.*

See also

- JIRA Reports Overview

Browsing a Project's Summary

The **Summary** page for a project in JIRA shows recent activity in the project, plus a list of versions and issues that are due soon.

To browse a project's summary,

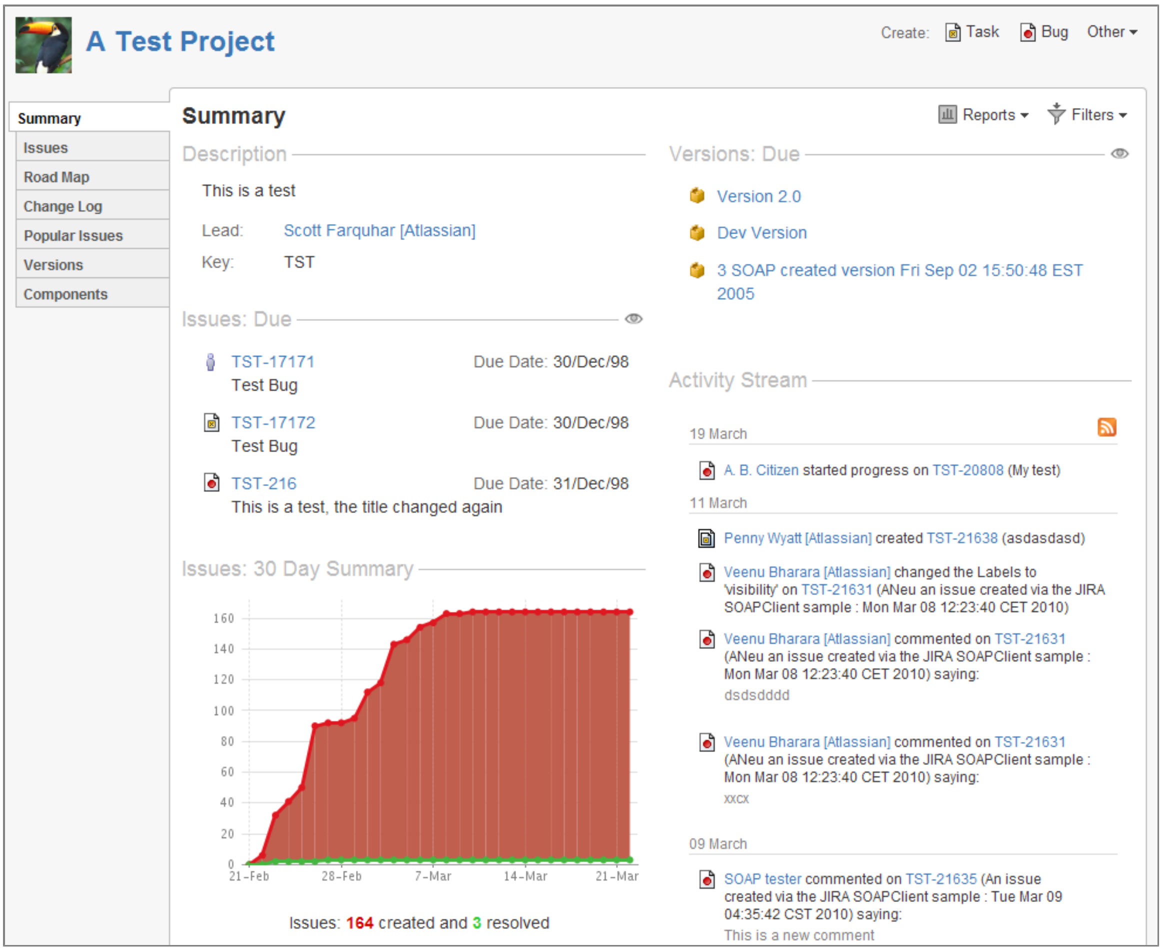
1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*

2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.

3. Ensure that the '**Summary**' tab page is displayed (see screenshot below). If not, click the 'Summary' tab on the left to show this page.
   - Click the appropriate icon (e.g. 'Bug', 'Improvement', 'Task' etc) next to the '**Create**' label in the top right, to create an issue of that issue type.
   - Click the '**Reports**' menu and click the relevant dropdown menu item to generate reports for the project. See Generating Reports for more information.
   - Click the '**Filters**' menu and click the relevant dropdown menu item to view issues in the Issue Navigator with the relevant filter applied. See Saving Searches ('Issue Filters') for more information on filters.

Extending your Project Summary
The Project Summary page can be easily extended via plugins. For example, you can add a Calendar tab or a Labels tab via the JIRA Calendar plugin and JIRA Labels plugin respectively. Check out the Atlassian Plugin Exchange for more information.

Screenshot: 'Summary' page for a Project



Tip: *You can click the icon in the 'Issues: Due' or 'Issues: Updated recently' sections to view an extended list of issues through the Issue Navigator. Clicking this icon in the 'Versions: Due' section takes you through to the versions tab.*

Related Topics

- Browsing a Project
- JIRA Reports Overview

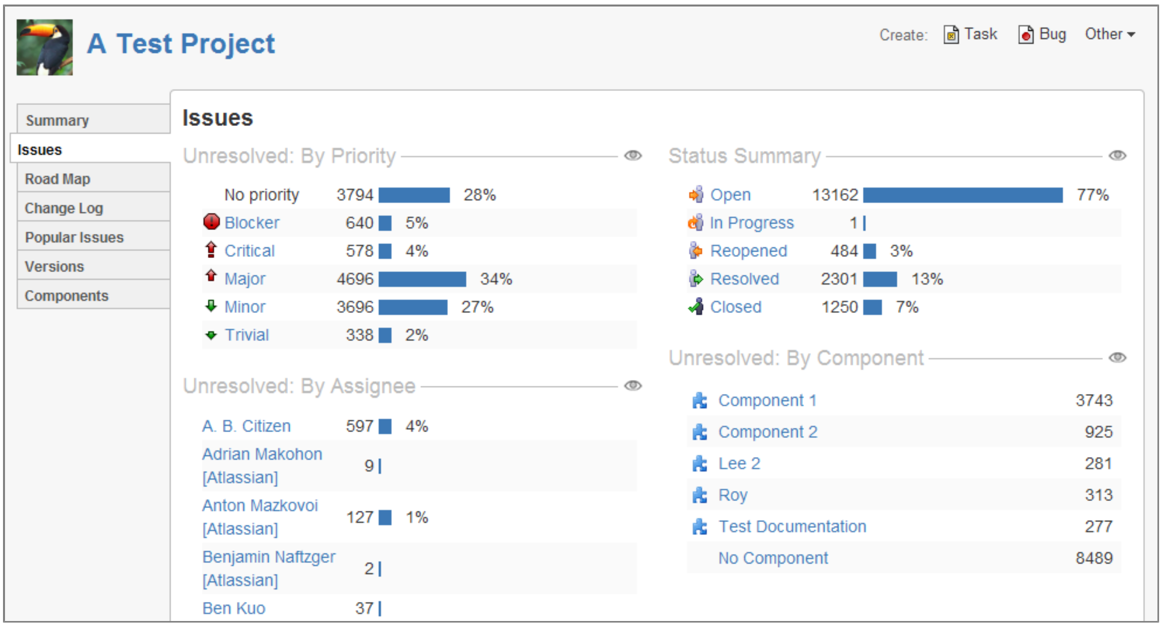
Browsing a Project's Issues

JIRA's **Issues** report shows a summary of all issues in a project grouped by Status, as well as summaries of all unresolved issues, grouped by Assignee, Priority, Version and Component.

To browse a project's Issues,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the '**Issues**' tab on the left of the page. The summary of issues for your project will display (see screenshot below):

Screenshot: Viewing the Issues Summary for a Project



> To see which issues have a particular priority, assignee or status, or belong to a particular [component] or [version] of the project, click the name of the relevant priority/assignee/status/component/version.

Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Project's Road Map

JIRA provides a **Road Map** for each project, which shows issues scheduled for the next ten unreleased versions (whereas the Change Log shows released versions). The Road Map provide an overview of progress made towards releasing a version.

> If your administrator has hidden the '**Fix For Version**' field, the Road Map report will not be available.

To browse a project's Road Map,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Road Map'** tab on the left of the page. The road map for your project will display (see screenshot below).
   - Click the grey arrow next to any version to expand the list of issues related to that version.
   - Click the **'View personal road map'** link to see issues assigned to you for all unreleased versions of a project.

Screenshot: Viewing a project's road map

A live version of this example can be seen online.

Related Topics

- The Change Log — looking back at recent releases rather than forward
- Browsing a Project
- JIRA Reports Overview

Browsing a Project's Change Log

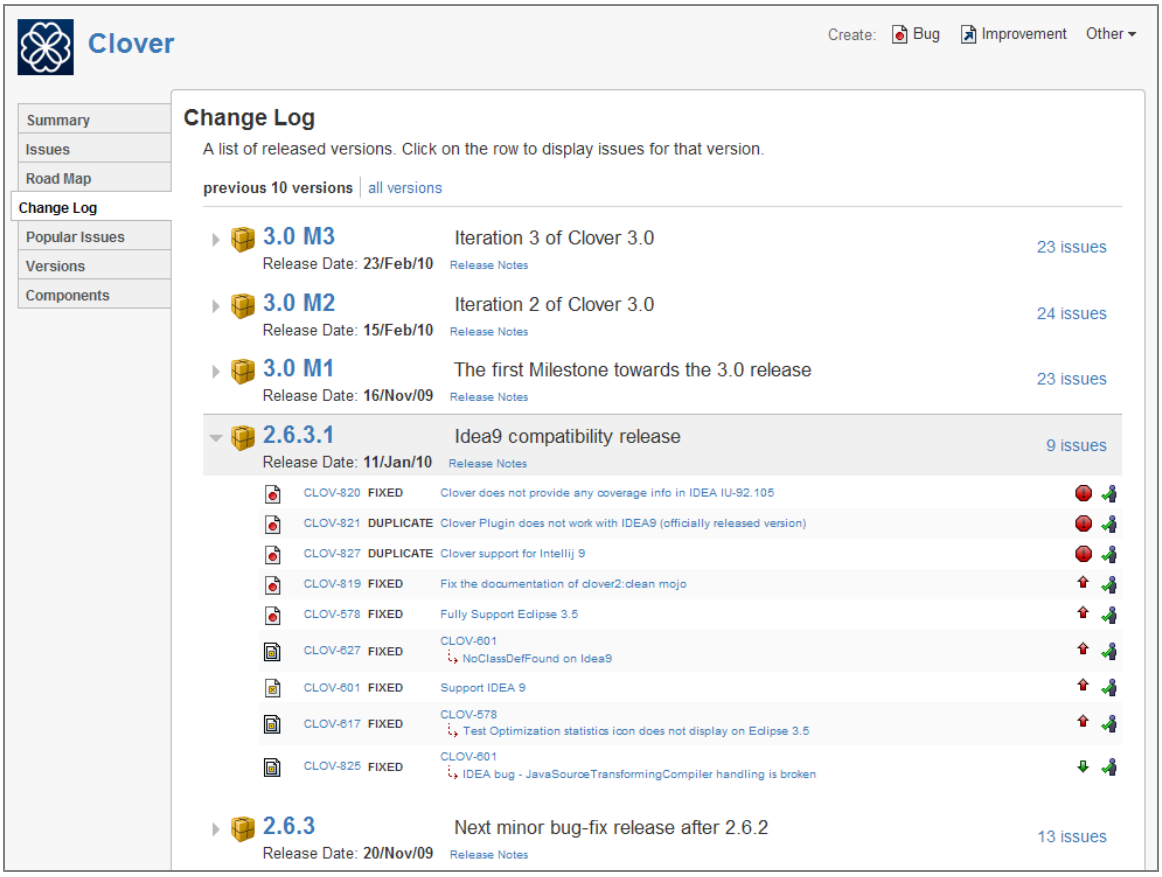
JIRA's **Change Log** report shows resolved issues in the last ten released versions of a project. Whereas the Road Map looks forward, the Change Log looks back, giving an overall view of issues resolved in recent versions.

If your administrator has hidden the '**Fix For Version**' field, the Change Log report will not be available.

To browse a project's Change Log,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Change Log'** tab on the left of the page. The change log for your project will display (see screenshot below).

Screenshot: Viewing a project's change log



A live version of this example can be seen online.

Related Topics

- The Road Map — looking forward to future releases
- Browsing a Project
- JIRA Reports Overview

Browsing a Project's Popular Issues

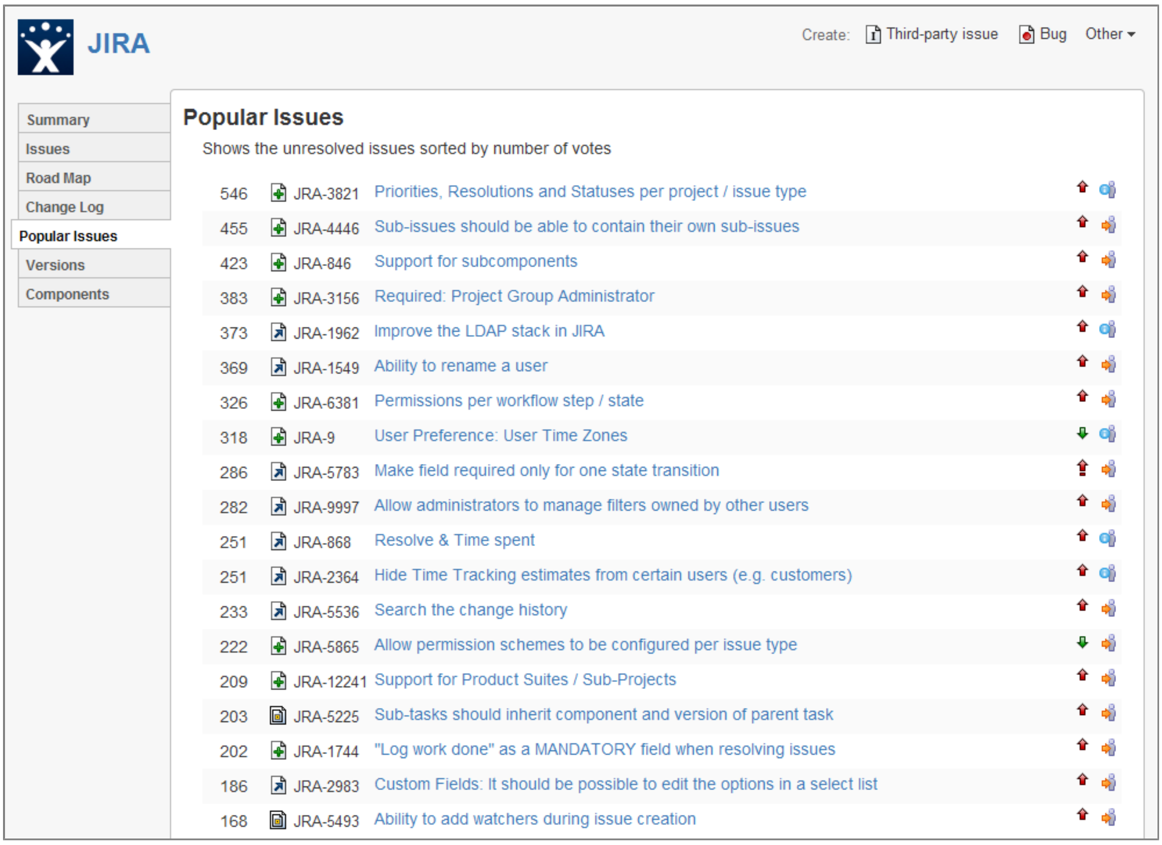
The **Popular Issues** page for a project in JIRA shows unresolved issues in a project, sorted by number of votes.

> Please note, this report is only visible if voting is enabled in your JIRA instance.

To browse a project's popular issues,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Popular Issues'** tab on the left of the page. The popular issues for your project will display (see screenshot below):

Screenshot: 'Popular Issues' page for a Project



Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Project's Versions

JIRA's **Versions** report shows a summary of all versions (if any have been created) in a project.

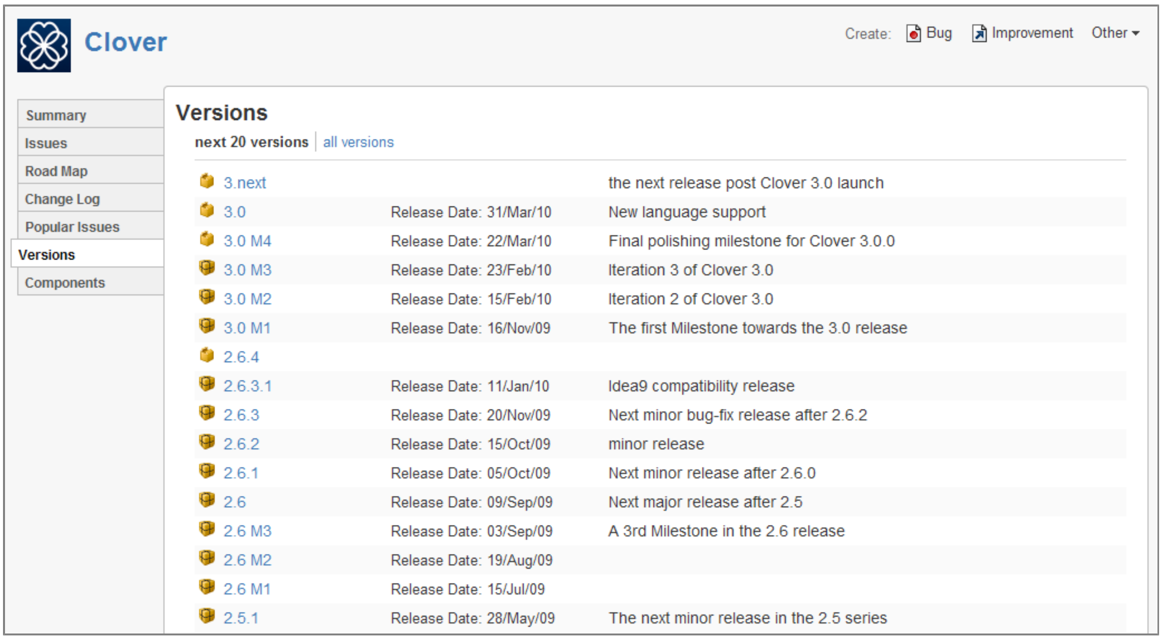
To browse a project's versions,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*

2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.

3. Click the **'Versions'** tab on the left of the page. A list of versions for your project will display (see screenshot below).
   - Click the link for a version to browse that version.

Screenshot: 'Versions' page for a Project



A live version of this example can be seen online.

For each version, see also:

- Browsing a Version's Summary
- Browsing a Version's Issues
- Browsing a Version's Popular Issues
- Browsing a Version's Bamboo Builds

Related Topics

- Browsing a Project
- JIRA Reports Overview

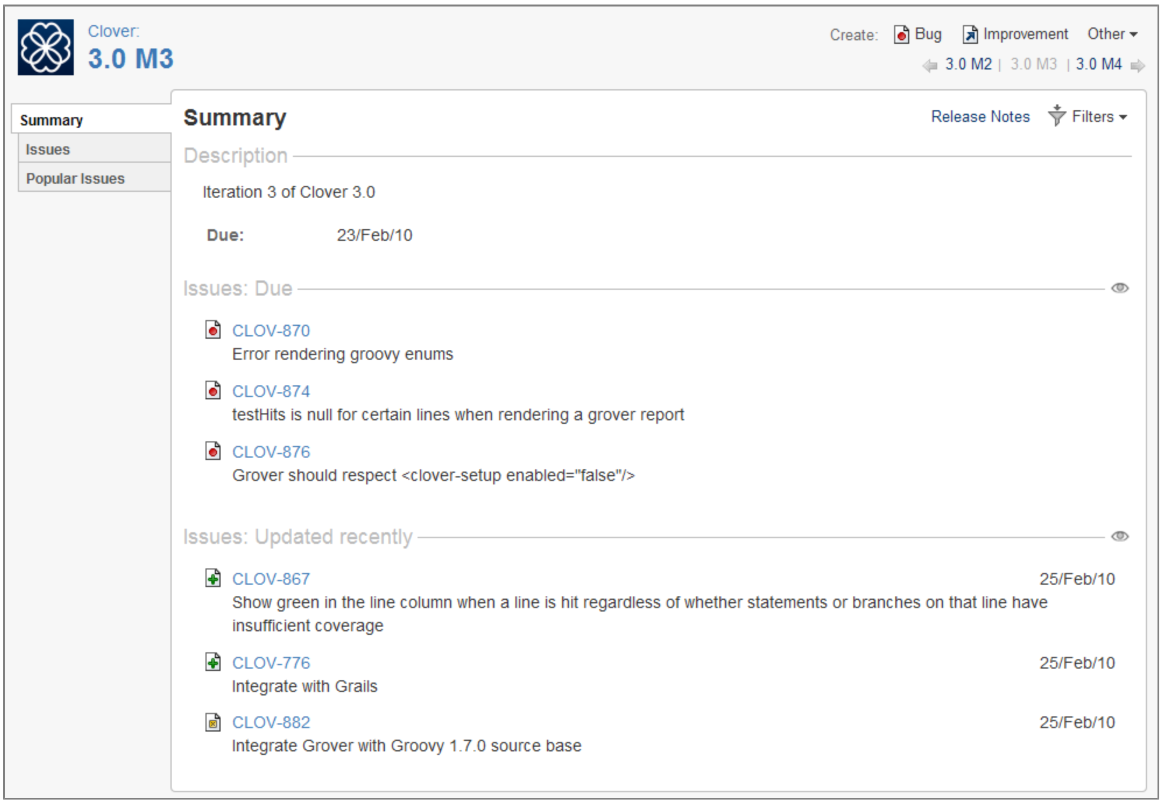
Browsing a Version's Summary

JIRA provides a **Summary** of each version of a project, which shows recent activity in that version, plus a list of issues that are due soon.

To browse a version's summary,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   ***Tip:** You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Versions'** tab on the left of the page. Click the name of the version in which you are interested.
4. Click the **'Summary'** tab. The summary for your version will display (see screenshot below) displaying the recently updated issues related to the version, by default.
   - Click the '**Release Notes**' link to view the release notes for the version (if released).
   - Click the '**Filters**' menu and select the filter to apply to the issues displayed on the screen.
   - Click any of the icons to go through to the Issue Navigator and see the full list of issues.
   - You can also navigate to the version summaries for the versions prior to the current version and the versions following the current version by clicking the version links above the 'Release Notes' and 'Filters' menus.

Viewing a project version's summary



Related Topics

- Browsing a Project
- JIRA Reports Overview

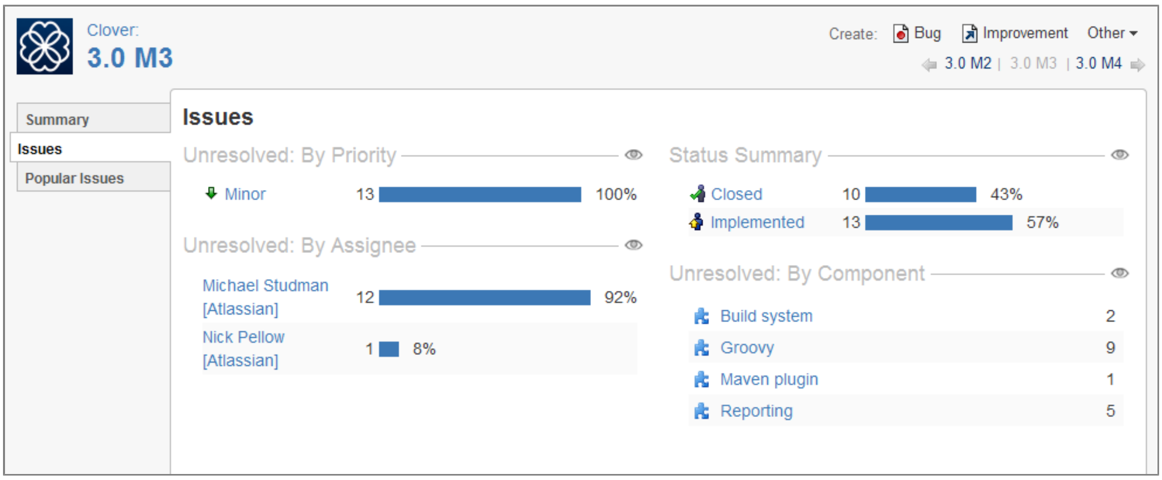
Browsing a Version's Issues

JIRA provides a list of issues for each version of a project.

To browse a version's issues,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Versions'** tab.
4. A list of versions will be displayed. Click the name of the version in which you are interested.
5. Click the **'Issues'** tab on the left of the page. The issues summary for your version will display (see screenshot below).
   - To see which issues have a particular priority, assignee or status, or belong to a particular component of the project, click the name of the relevant priority/assignee/status/component.

Viewing the issues summary for a version



Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Version's Popular Issues

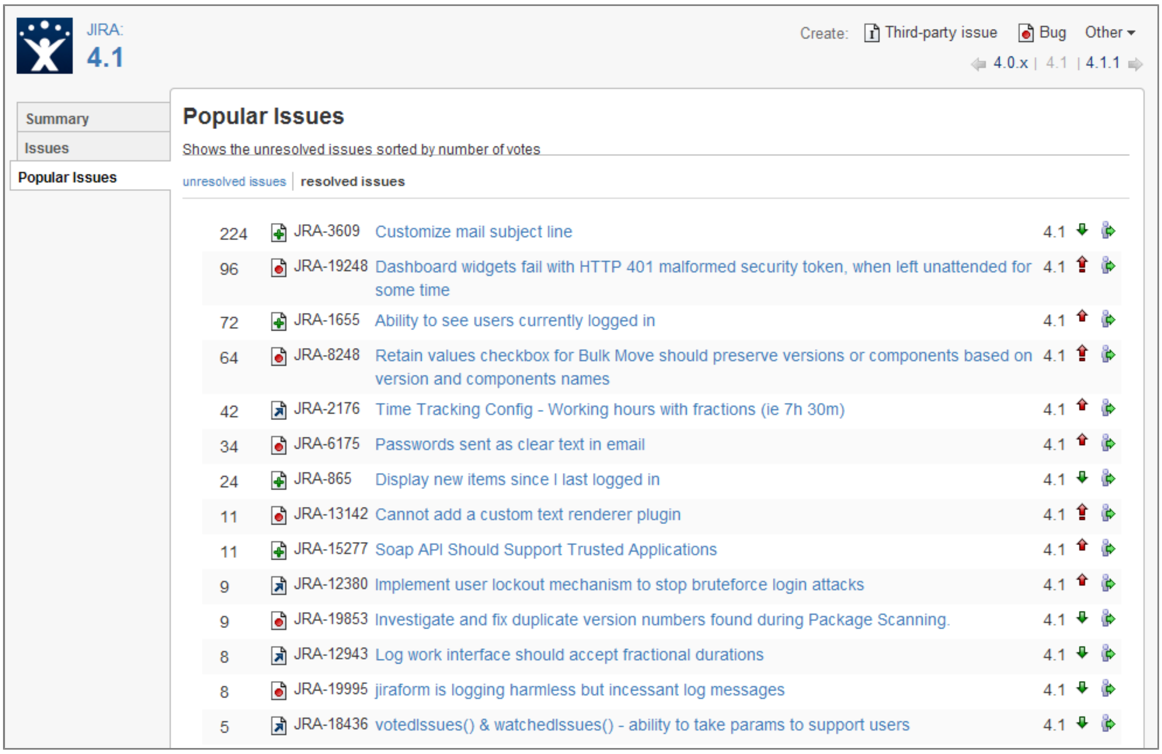
JIRA's **Popular Issues** report shows unresolved issues in a given version of a project, sorted by number of votes. It is particularly useful on public JIRA installations.

This report is only visible if your JIRA administrator has enabled voting in your JIRA instance.

To browse a version's popular issues,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Versions'** tab on the left of the page.
4. Click the name of the version in which you are interested.
5. Click the **'Popular Issues'** tab. The unresolved popular issues for your version will display (see screenshot below). To see resolved popular issues (instead of unresolved popular issues), click **'resolved issues'.**

Screenshot: Popular issues for a version



Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Version's Bamboo Builds

If your organisation uses Atlassian's Bamboo and your administrator has integrated Bamboo with JIRA, JIRA enables you to view the Bamboo build plan status and recent build activity for a version of a project. The **Builds** tab provides you with a list of the builds which are related to the project version, including:

- the list of the builds which are related to the version, i.e. builds that have issues from the project version linked to them (either as 'Fixed' or 'Related'). See the Bamboo documentation for instructions on linking issues to builds.

- the latest status of the build plans for the related builds, i.e. the build plan contains a build that has a project issue linked to it. The status of a build plan for a version is determined as follows:
  - If the project version has not been released — the build plan status is the status of the latest build in the Bamboo build plan, regardless of whether the latest build is related to the version (i.e. has issues from the project version linked to it).
  - If the project version has been released — the build plan status is the status of the latest build in the Bamboo build plan, that is related to the version (i.e. has issues from the project version linked to it) and is prior to or equal to the release date (or current date, if there is no release date).

To view the Bamboo build information related to a version,

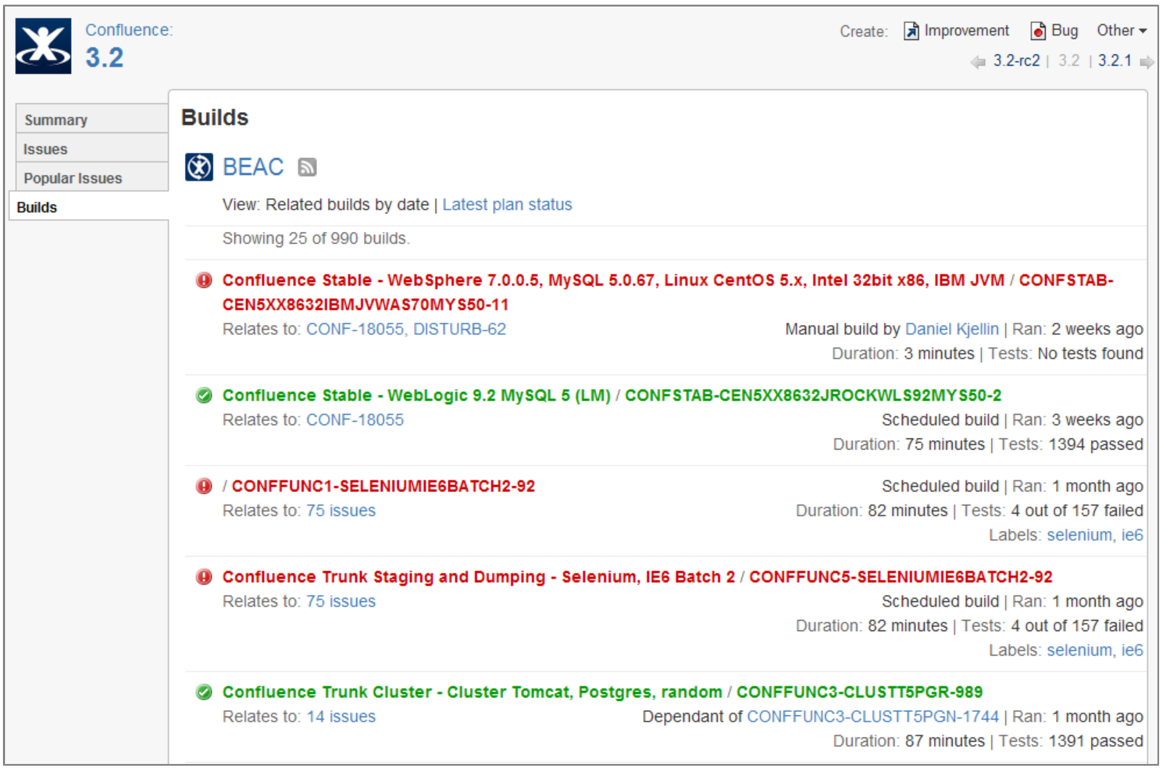
1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Versions'** tab.
4. A list of versions will be displayed. Click the name of the version in which you are interested.
5. Click the **Builds** tab. You will be able to view the following information:
   - Builds related to the Project (displayed by default)
   - Status of Build Plans related to the Project (click the **'Latest plan status'** link at the top of the '**Builds**' page)

> If you cannot see the **Builds** tab, your administrator may need to add the **'View Version Control'** permission to your project.

Viewing the Builds related to the Project Version

By default, the **Builds** tab will display the list of related builds, ordered by build date in descending order.

Screenshot: Viewing the builds related to a version



Setting up an RSS feed to track Builds related to the Version

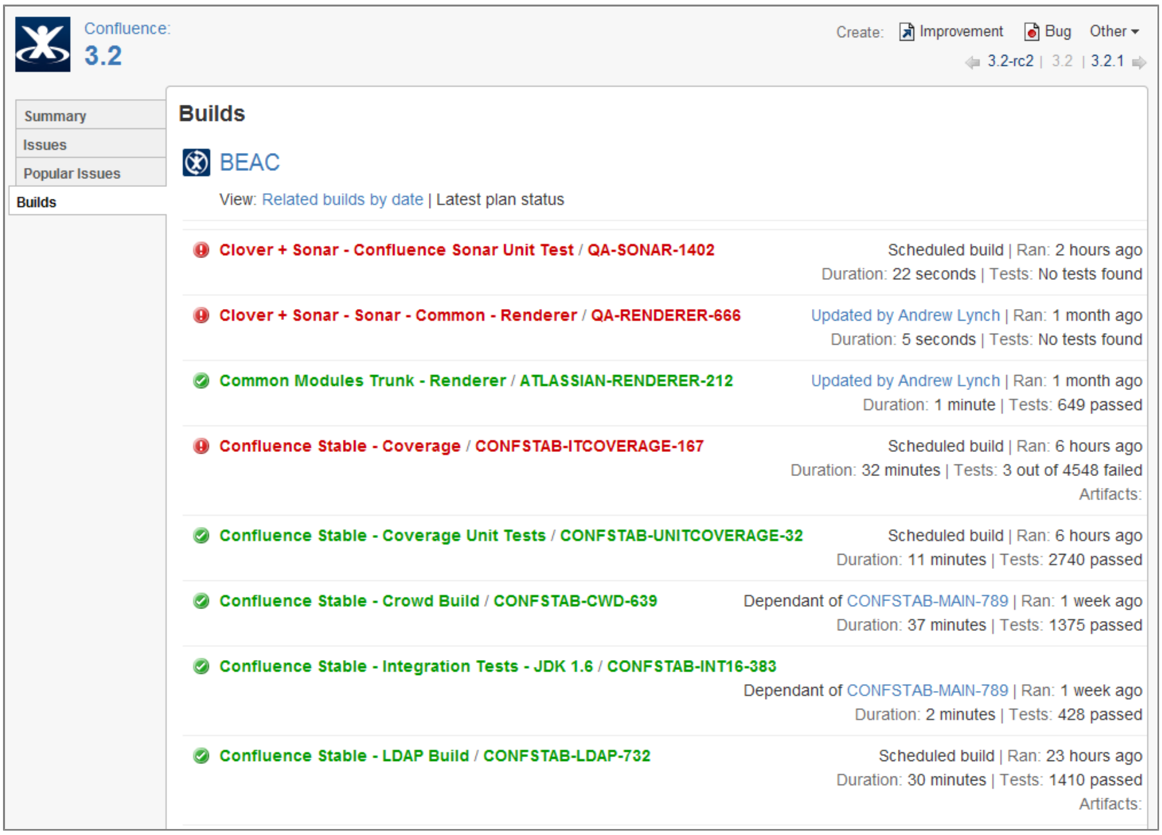
You can set up an RSS feed to track this information by clicking on the RSS icon in the top left section of the page. Each entry in the list will display information about the related build, including:

- the build name and name of the build plan
- when the build was last run
- summary information, such as related builds, duration of the build, tests passed
- build labels (if any)
- links to build artifacts (if any)

Viewing the Status of Build Plans related to the Project Version

To view the status of build plans related to the project version, click the **'Latest plan status'** link at the top of the **Build** tab. The build plans listed will show the status of the Build Plan, including information about the latest build in the plan (similar to the diagram above). Build plans will be sorted by plan name.

Screenshot: Viewing the status of builds related to a version



Related Topics

- Viewing the Bamboo Builds related to an Issue
- Browsing a Project's Bamboo Builds

Browsing a Project's Components

JIRA's **Components** report shows a summary of all components (if any have been created) in a project.

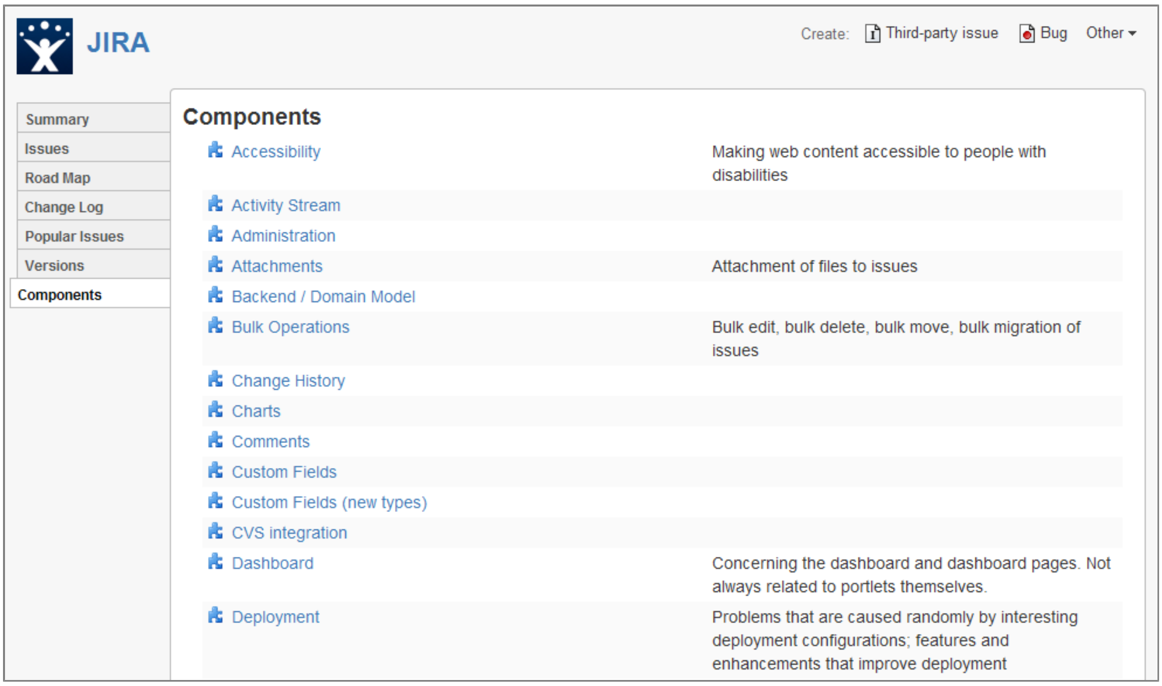
To browse a project's components,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*

2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.

3. Click the **'Components'** tab on the left of the page. A list of components for your project will display (see screenshot below).
   - Click the name of a component to browse that component.

Screenshot: 'Components' page for a Project



A live version of this example can be seen online.

For each component, see also:

- Browsing a Component's Summary
- Browsing a Component's Issues
- Browsing a Component's Road Map
- Browsing a Component's Change Log
- Browsing a Component's Popular Issues

Related Topics

- Browsing a Project
- JIRA Reports Overview

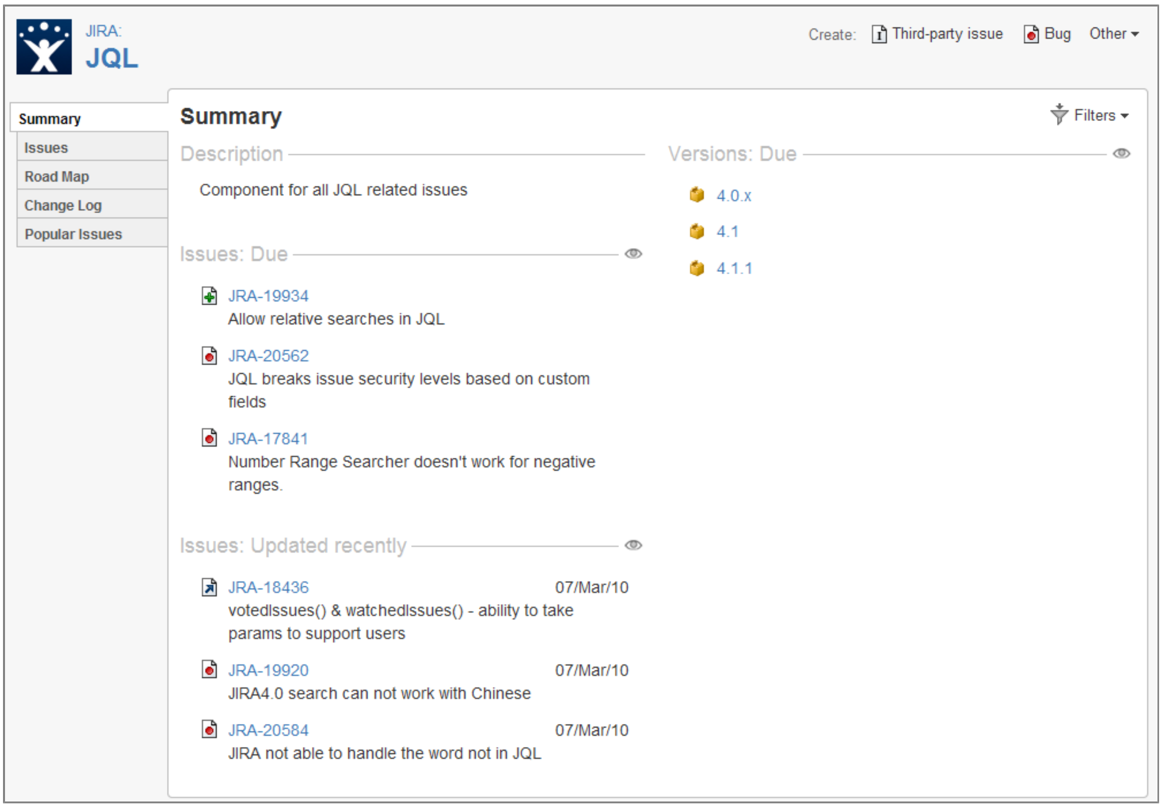
Browsing a Component's Summary

JIRA provides a **Summary** of each component of a project, which shows recent activity in the component, plus a list of issues that are due soon.

To browse a component's summary,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Components'** tab on the left of the page. Click the name of the component in which you are interested.
4. Click the **'Summary'** tab. The summary for your component will display (see screenshot below).
   - Click the icon in the '**Issues: Due**' section to go through to the Issue Navigator and see the full list of due issues.
   - Click the icon in the '**Issues: Updated recently**' section to go through to the Issue Navigator and see the full list of issues updated recently.
   - Click the icon in the '**Versions: Due**' section to view the versions in the project.

Viewing a project component's summary



Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Component's Issues

JIRA provides a list of all the issues for each component of a project.

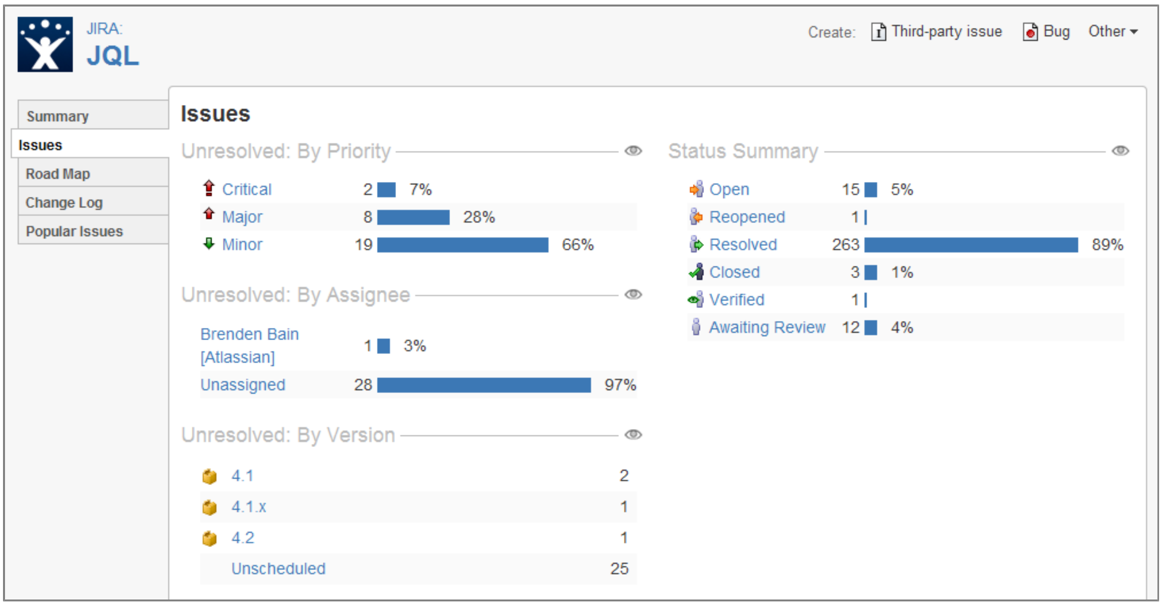
To browse a component's issues,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*

2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.

3. Click the **'Components'** tab.
4. A list of components will be displayed. Click the name of the component in which you are interested.
5. Click the **'Issues'** tab on the left of the page. The issues summary for your component will display (see screenshot below).
   - Click the icon in the '**Unresolved: By Priority**' section to go through to the Issue Navigator and see the full list of unresolved issues by priority.
   - Click the icon in the '**Unresolved: By Assignee**' section to go through to the Issue Navigator and see the full list of unresolved issues by assignee.
   - Click the icon in the '**Unresolved: By Version**' section to go through to the Issue Navigator and see the full list of unresolved issues by version.
   - Click the icon in the '**Status Summary**' section to go through to the Issue Navigator and see the full list of unresolved issues by status.

Viewing the issues summary for a component



Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Component's Road Map

JIRA provides a **Road Map** for each component of a project, which shows issues scheduled for the next ten unreleased versions (whereas the Change Log shows released versions). The Road Map provides an overview of progress made towards releasing a version.

> ⚠ If your administrator has hidden the '**Fix For Version**' field, the Road Map report will not be available.

To browse a component's Road Map,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   ✅ ***Tip:*** *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Components'** tab on the left of the page.
4. Click the name of the component in which you are interested.
5. Click the **'Road Map'** tab. The road map for your component will display (see screenshot below)
   - Click the grey arrow next to any version to expand the list of issues related to that version.
   - Click the **'View personal road map'** link to see issues assigned to you for the next four unreleased versions of a project.

<u>*Screenshot: Viewing a component's road map*</u>

Related Topics

- The Change Log — looking back at recent releases rather than forward
- Browsing a Project
- JIRA Reports Overview

Browsing a Component's Change Log

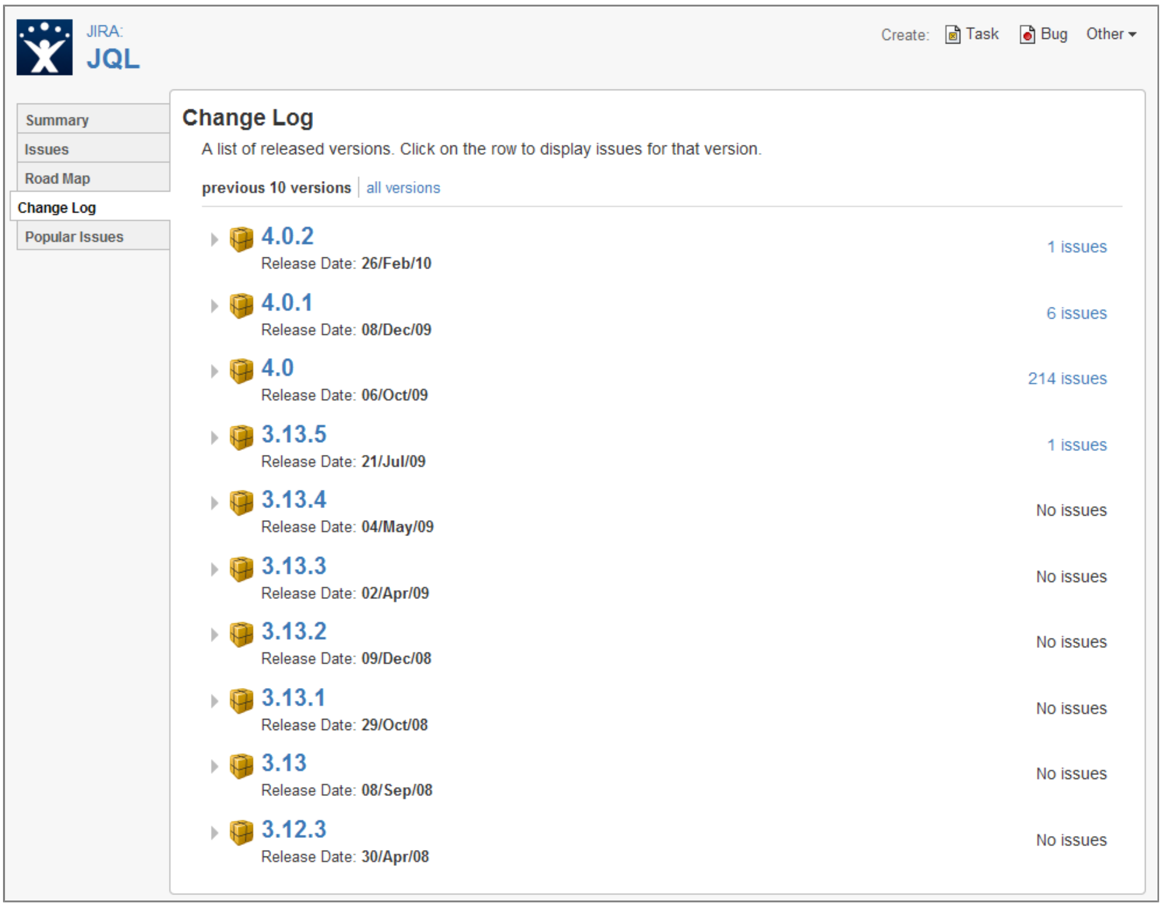
JIRA's **Change Log** report shows resolved issues in the last ten released versions of a project. Whereas the Road Map looks forward, the Change Log looks back, giving an overall view of issues resolved in recent versions.

> If your administrator has hidden the '**Fix For Version**' field, the Change Log report will not be available.

To browse a component's Change Log,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Components'** tab on the left of the page.
4. Click the name of the component in which you are interested.
5. Click the **'Change Log'** tab. The change log for your component will display (see screenshot below)
   - Click **'all versions'** to see the Change Log for all released versions (not just the latest ten).
   - Click the grey arrow next to any version to expand the list of issues related to that version.

Screenshot: Viewing a component's change log



Related Topics

- The Road Map — looking forward to next releases
- Browsing a Project
- JIRA Reports Overview

Browsing a Component's Popular Issues

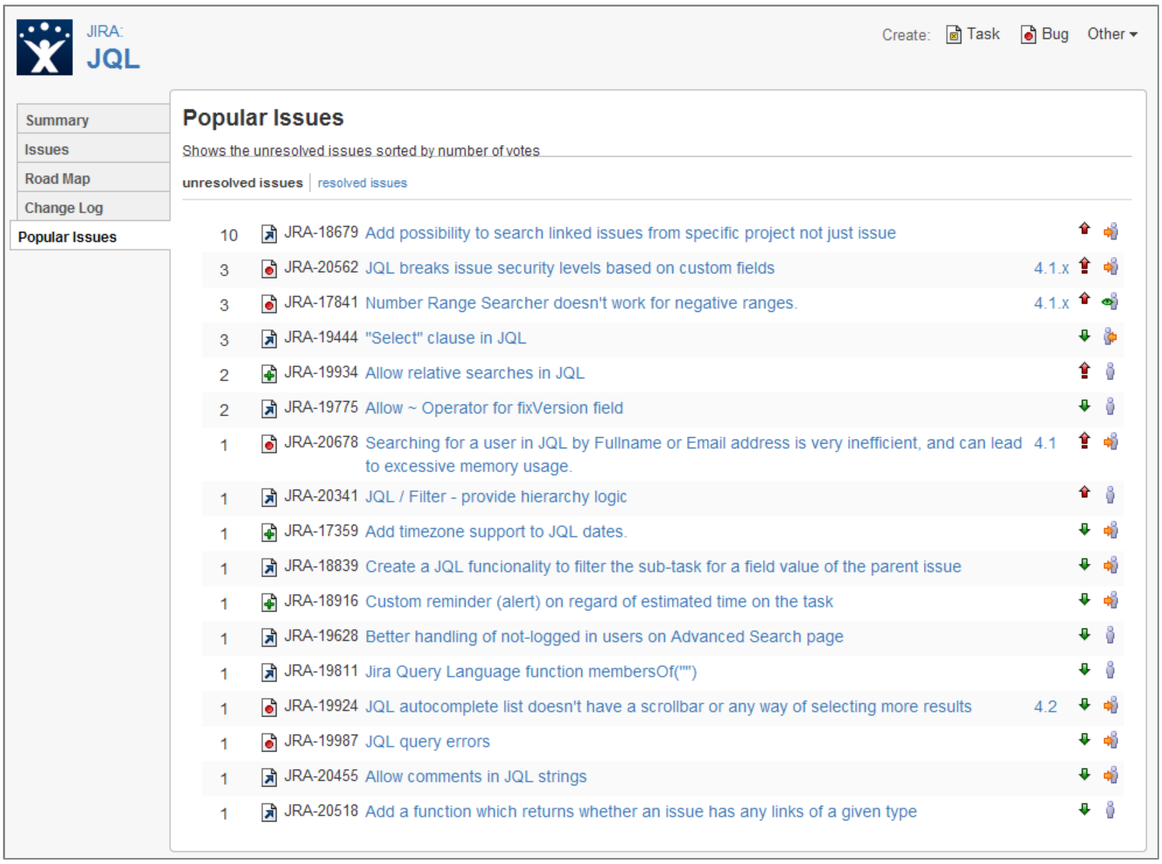
JIRA's **Popular Issues** report shows unresolved issues in a given component of a project, sorted by number of votes. It is particularly useful on public JIRA installations.

> ⚠ This report is only visible if your JIRA administrator has enabled voting in your JIRA instance.

To browse a component's popular issues,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   ✅ ***Tip:** You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Components'** tab on the left of the page.
4. Click the name of the component in which you are interested.
5. Click the **'Popular Issues'** tab. The unresolved popular issues for your component will display (see screenshot below). To see resolved popular issues (instead of unresolved popular issues), click **'resolved issues'.**

Screenshot: Popular issues for a component



Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Project's Labels

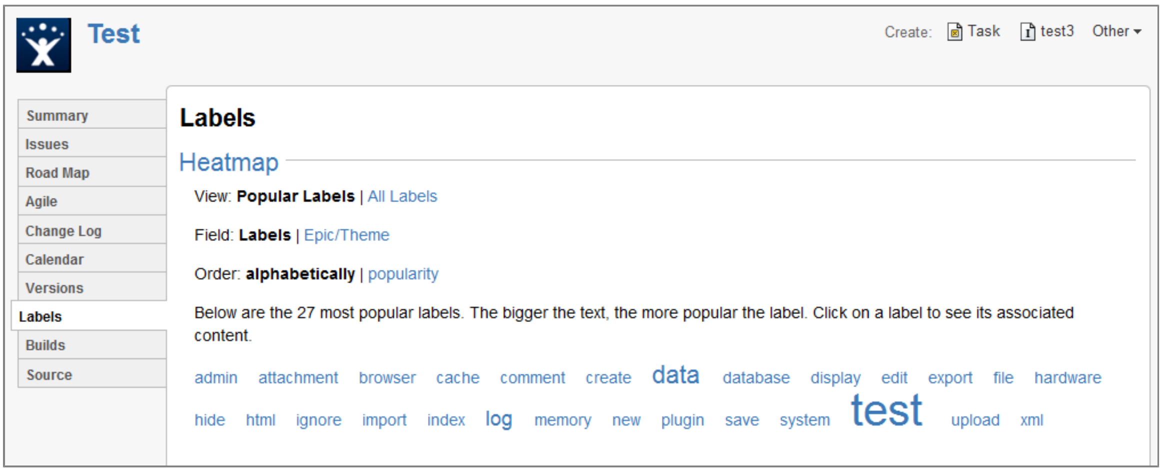
The **Labels** page for a project in JIRA shows labelled issues in a project.

To browse a project's labelled issues,

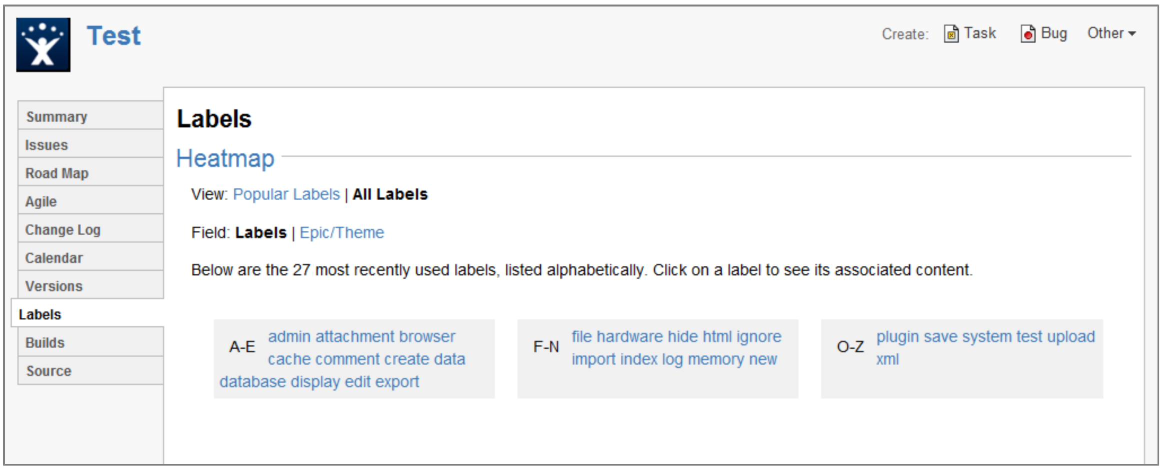
1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   ✅ ***Tip:** You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.

3. Click the **'Labels'** tab on the left of the page. The labelled issues for your project will display (see screenshot below).
    - Next to the word '**View**', click '**Popular Labels**' / '**All Labels**' to toggle between the different views.

Screenshot: 'Popular Labels' view for a Project



Screenshot: 'All Labels' view for a Project



Next to the word '**Field**', the name '**Labels**' will be shown — this represents any labels that have been applied to your issues as described in [Labelling an Issue (hidden draft for 4.2)]. If any other names are shown, you can click them to see any other Labels custom fields in your JIRA system. For example, the screenshot above contains a Labels custom field called '**Epic/Theme**'.

Related Topics

- Browsing a Project
- JIRA Reports Overview

Browsing a Project's Bamboo Builds

If your organisation uses **Atlassian's Bamboo** and your administrator has integrated Bamboo with JIRA, JIRA enables you to view the Bamboo build plan status and recent build activity for a project. The **Builds** tab provides you with the build information related to the project, including:

- the list of the builds which are related to the project, i.e. builds that have issues from the project linked to them (either as 'Fixed' or 'Related'). See the Bamboo documentation for instructions on linking issues to builds.
- The latest status of the build plans for the related builds, i.e. the build plan contains a build that has an issue from the project linked to it.

To view the Bamboo build information related to a project,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*

2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.

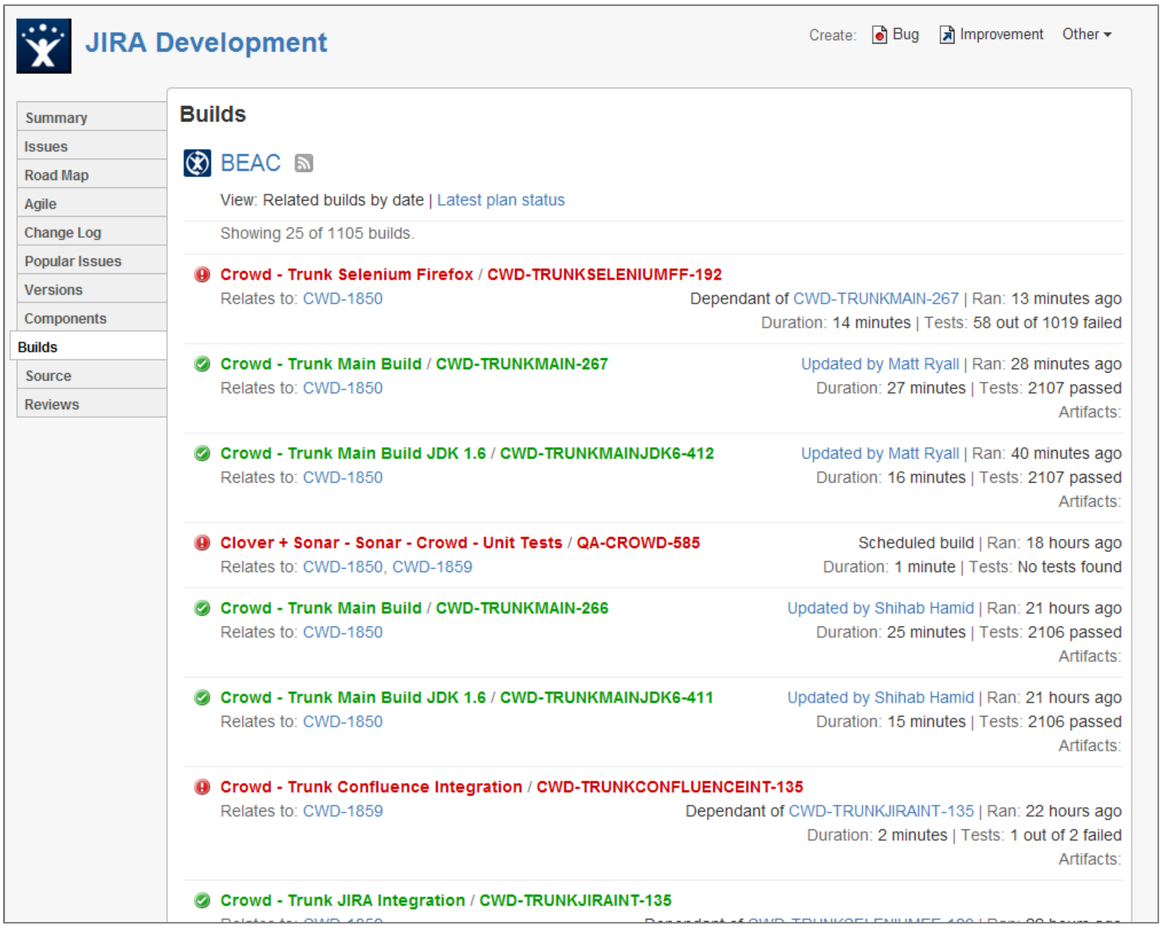
3. Click the **'Builds'** tab on the left of the page. You will be able to view the following information:
   - Builds related to the Project (displayed by default)
   - Status of Build Plans related to the Project (click the **'Latest plan status'** link at the top of the '**Builds**' page)

> If you cannot see the **Builds** tab, your administrator may need to add the **'View Version Control'** permission to your project.

Builds related to the Project

By default, the **Builds** tab will display the list of related builds, ordered by build date in descending order.

Screenshot: Viewing the builds related to a project



Setting up an RSS feed to track Builds related to the Project

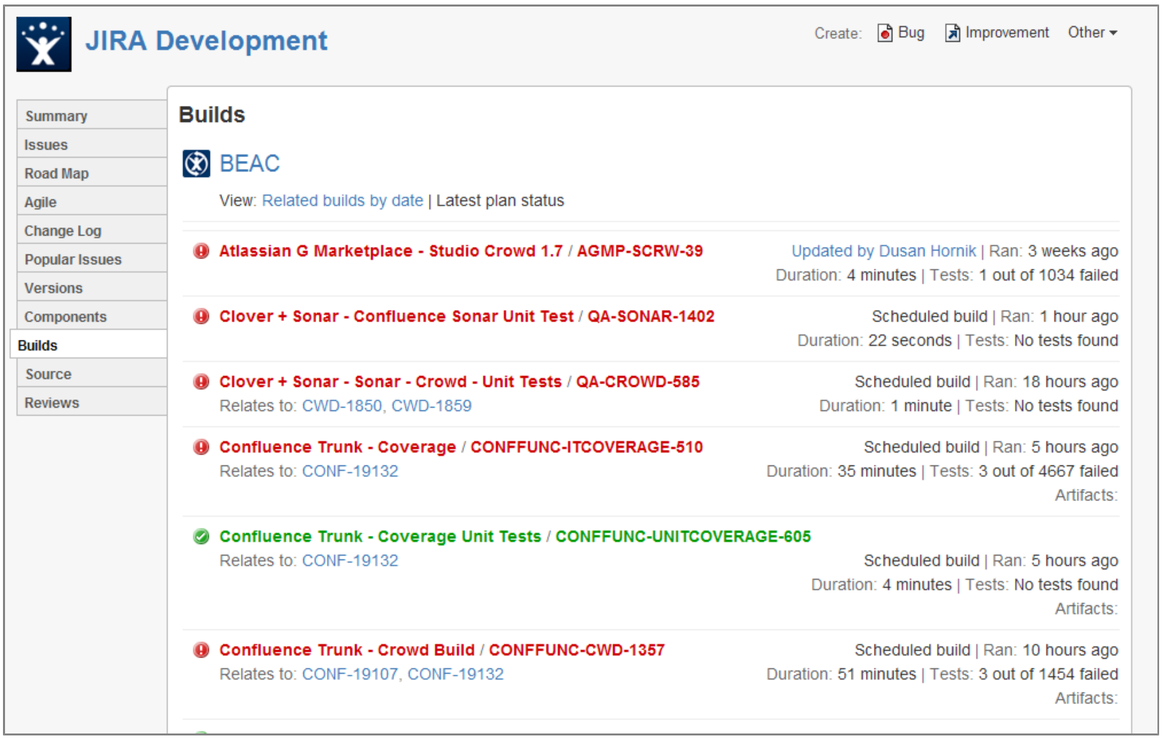
You can set up an RSS feed to track this information by clicking on the RSS icon in the top left section of the page. Each entry in the list will display information about the related build, including:

- the build name and name of the build plan
- when the build was last run
- summary information, such as related builds, duration of the build, tests passed
- build labels (if any)
- links to build artifacts (if any)

Status of Build Plans related to the Project

The build plans listed will show the status of the build plan, (i.e. status of the latest build), including information about the latest build in the plan (similar to the diagram above). Build plans will be sorted by the plan name.

Screenshot: Viewing the status of builds related to a project



Related Topics

- Viewing the Bamboo Builds related to an Issue
- Browsing a Version's Bamboo Builds

Browsing a Project's FishEye Changesets

JIRA's **Changeset** report allows you to view recent changeset activity for a project (that is, where a JIRA issue key belonging to the project was referenced in the commit message), if you are using a source-code repository together with Atlassian FishEye. You can:

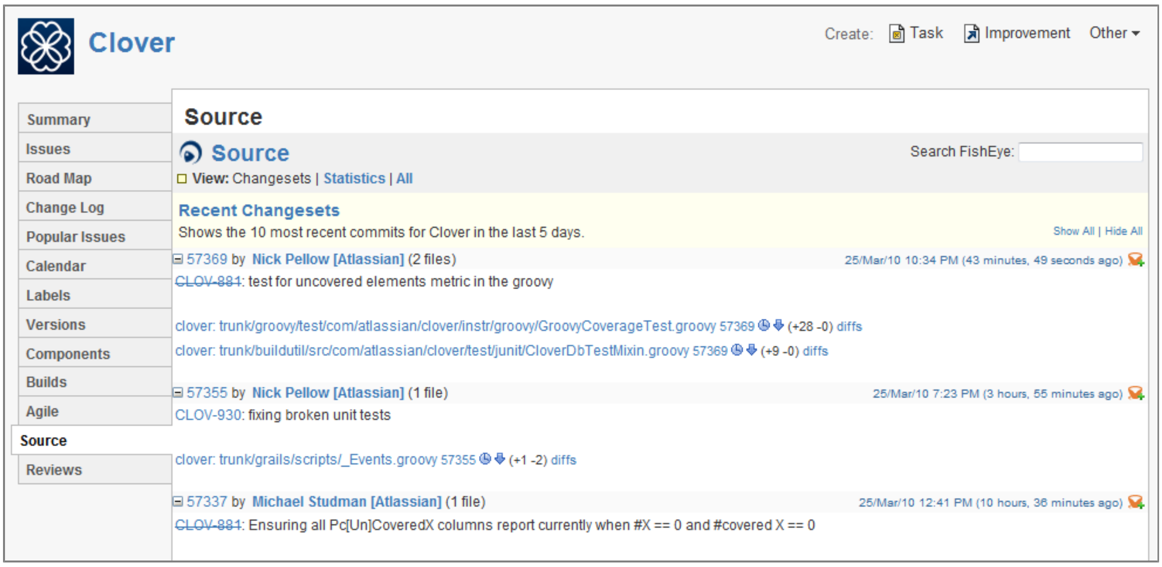
- View all 'Recent Changesets' for all repository changesets across the entire project.
- View 'Activity Statistics' on LOC (lines-of-code), files or commits for the project, issue or author.
- Search the FishEye repository linked to the JIRA project currently being browsed.

> To be able to view the changeset report, your JIRA administrator must have configured the FishEye plugin appropriately. You will also need the 'View Version Control' permission in the appropriate projects.

To view the changeset activity for a project,

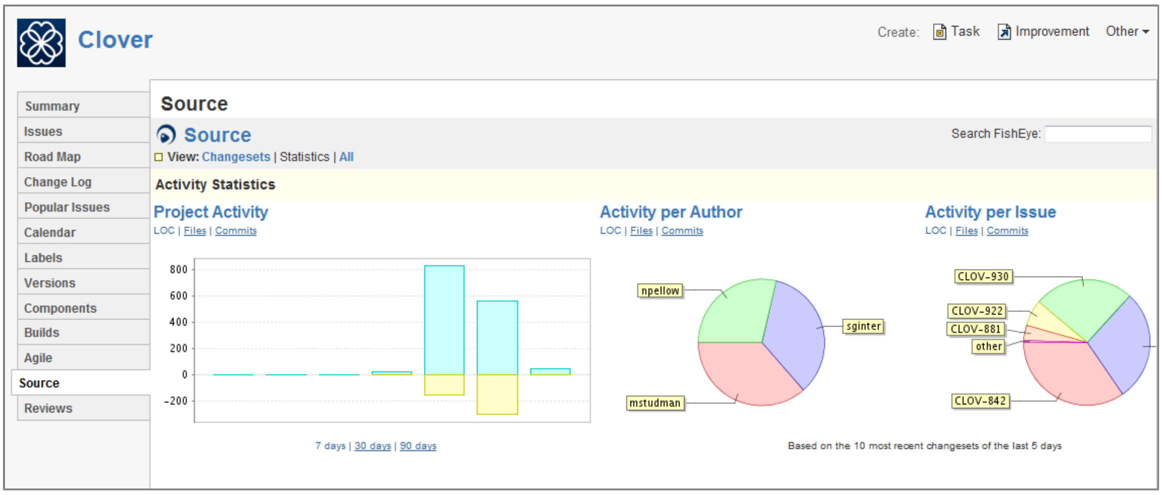
1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Source'** tab on the left of the page. The recent changesets for your project will display (see screenshot below). By default, you will see a listing of the most recent changesets for a project:

<u>*Screenshot: Viewing the recent changesets for a project*</u>



You can also view the Activity Statistics on LOC, Files or Commits for the project, by clicking the '**Statistics**' link. The Activity Statistics for the project will display:

Screenshot: Viewing the activity statistics for a project



If you wish to see the above two sets of information together, you can click on the '**All**' link to view it all on one page.

Related Topics

- Viewing an Issue's FishEye Changesets

Browsing a Project's Crucible Reviews

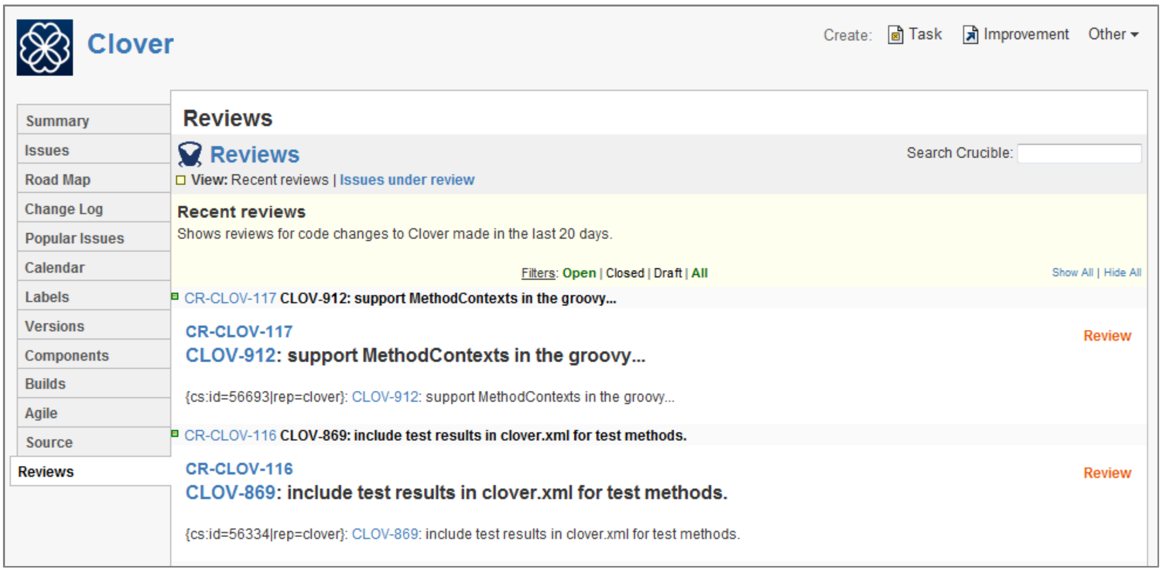
JIRA's **Reviews** report allows you to view recent code reviews activity for a project (that is, where a JIRA issue key belonging to the project was referenced in the review's description), if you are using a source-code repository together with Atlassian Crucible.

> To be able to view the **Reviews** report, your JIRA administrator must have configured the FishEye plugin appropriately. You will also need the 'View Version Control' permission in the appropriate projects.

To view the Reviews for a project,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Reviews'** tab on the left of the page. The recent changesets for your project will display (see screenshot below). By default, you will see a listing of the most recent changesets for a project:

Screenshot: Viewing the recent code reviews for a project



Viewing a Project's Burndown Chart

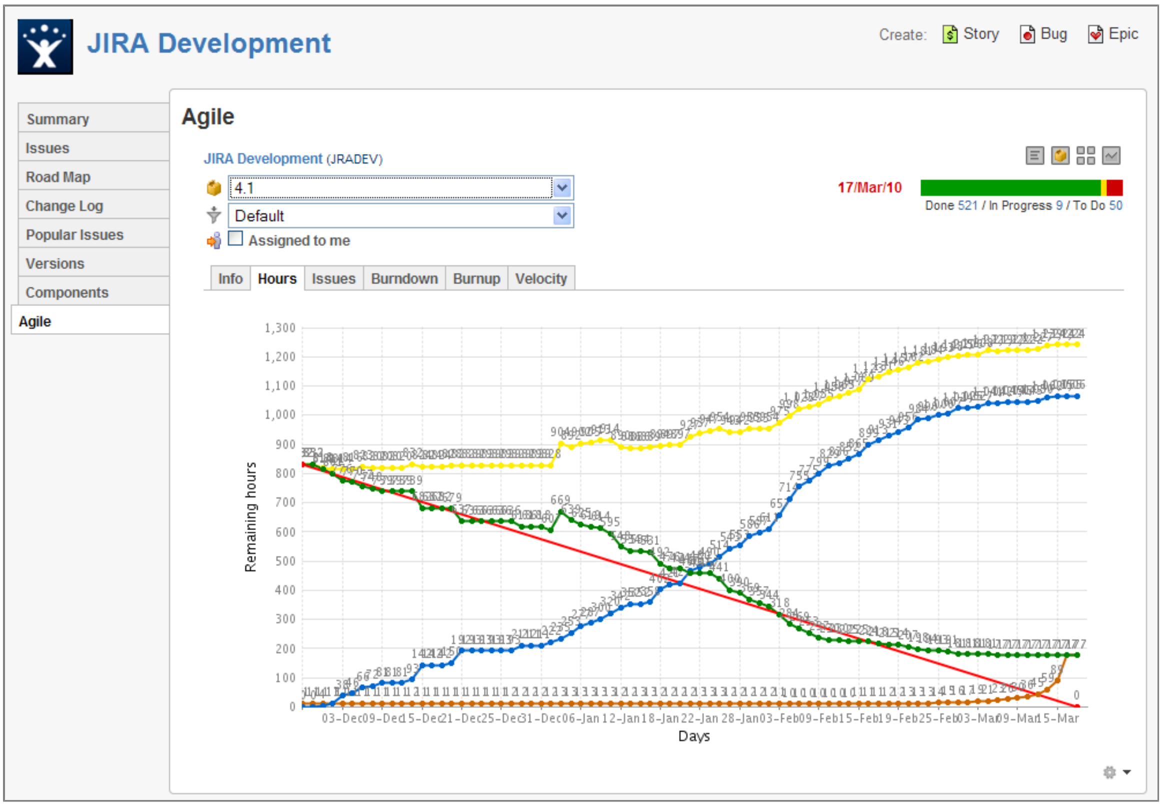
JIRA's **Agile** report allows you to view information about a project's Backlog and its various 'Burndown' Charts, if you are using the Atlassian GreenHopper plugin.

> To be able to view the **Agile** report, your JIRA administrator must have configured the GreenHopper plugin appropriately.

To view information about a project's Backlog and Burndown Charts,

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *You can access your current project directly by simply clicking the '**Projects**' link instead of the triangle.*
2. Click the project that you wish to browse. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click the **'Agile'** tab on the left of the page. The backlog for your project will display:

Screenshot: Viewing the Hour Burndown Chart for a project



On this page, you can:

- Use the '**Version**' drop-down to display the backlog for a different project version.
- Use the '**Context**' drop-down to select a different GreenHopper context.
- Select the '**Info**' tab to display more information about the backlog for the selected project version.
- Select one of the chart tabs (**Hours**, **Issues**, **Burndown**, **Burnup** or **Velocity**) to view the GreenHopper chart for your selected project version and context.
  Velocity Charts are also known more generically as 'Value Charts'.

Customising the Dashboard

On this page:

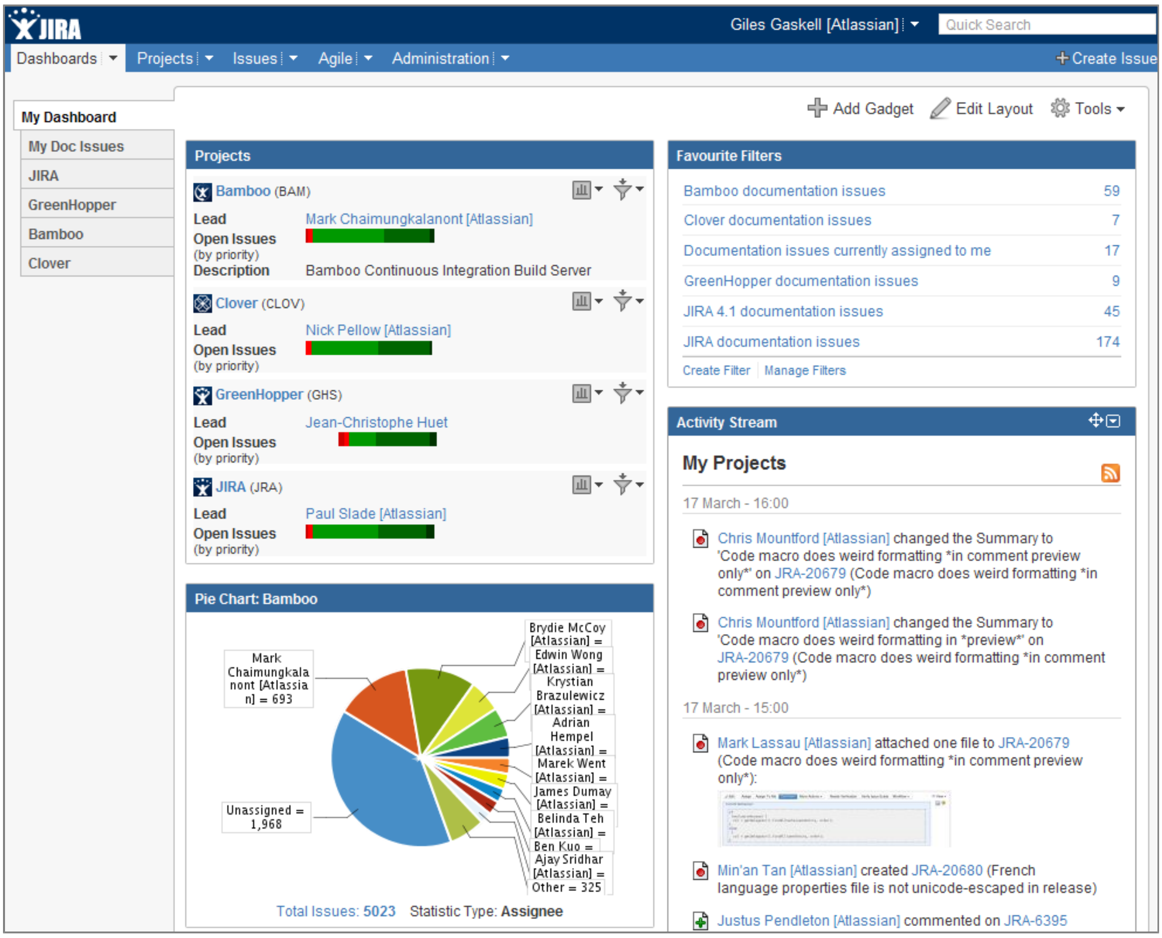
- About Dashboards and Gadgets
  - Available Gadgets
- Creating a Dashboard
  - Choosing a Dashboard Layout
  - Adding a Gadget
  - Moving a Gadget
  - Removing a Gadget

About Dashboards and Gadgets

The **JIRA Dashboards** is the first screen you see when you log in to JIRA. It can be configured to display many different types of information, depending on your areas of interest.

If you are anywhere else in JIRA, you can access your JIRA Dashboards view by clicking the '**Dashboards**' link in the top left corner of the JIRA interface.

The information boxes on the dashboard are called **Gadgets**:



> ⚠ If your user account has only one dashboard, the tabs on the left of the browser window will not be available and the dashboard will occupy the full window width.

You can easily customise your dashboard by choosing a different layout, adding more gadgets, dragging the gadgets into different positions, and changing the look of individual gadgets.

You can also create more pages for your dashboard, share your pages with other people and choose your favourites pages, as described in Managing Multiple Dashboard Pages . Each page can be configured independently, as per the instructions below.

Available Gadgets

Gadget	Description
Activity Stream Gadget	The **Activity Stream** gadget displays a summary of your recent activity.
Administration Gadget	The **Administration** gadget displays quick links to administrative functions.
Assigned To Me Gadget	The **Assigned To Me** gadget displays all open issues in all projects assigned to the current user viewing the dashboard.
Average Age Gadget	The **Average Age** gadget displays a bar chart showing the average number of days that issues have been unresolved.
Bamboo Charts Gadget *	The **Bamboo Charts** gadget displays various charts and plan statistics from a particular Bamboo server.
Bamboo Plan Summary Chart Gadget *	The **Bamboo Plan Summary** gadget displays a graphical summary of a build plan.
Bamboo Plans Gadget *	The **Bamboo Plans** gadget displays a list of all plans on a Bamboo server, and each plan's current status.
Bugzilla ID Search Gadget	The **Bugzilla ID Search** gadget allows the user to search all JIRA issues for references to Bugzilla IDs.

Calendar Gadget *	The **Issue Calendar** gadget shows issues and versions in a calendar format based on their due date. Calendars can be based on an issue filter or on a project.
Clover Coverage Gadget *	The **Clover Coverage** gadget displays the Clover coverage of plans from a particular Bamboo server.
Created vs Resolved Gadget	The **Created vs Resolved** gadget displays a difference chart showing the issues created vs resolved over a given period.
Crucible Charts Gadget *	The **Crucible Charts** gadget displays various charts showing statistical summaries of code reviews.
Favourite Filters Gadget	The **Favourite Filters** gadget displays a list of all the issue filters that have currently been added by you as a favourite filter.
Filter Results Gadget	The **Filter Results** gadget displays the results of a specified issue filter.
FishEye Charts Gadget *	The **FishEye Charts** gadget displays two charts showing showing statistics about a given sourcecode repository.
FishEye Recent Changesets Gadget *	The **FishEye Recent Changesets** gadget displays a number of recent changesets from a FishEye repository.
In Progress Gadget	The **In Progress** gadget displays all issues that are currently in progress and assigned to the current user viewing the dashboard.
Introduction Gadget	The **Introduction** gadget displays a configurable introduction message on the dashboard.
Issue Statistics Gadget	The **Issue Statistics** gadget displays the collection of issues returned from a specified filter, broken down by a specified field.
JIRA: News Gadget	The **JIRA:News** gadget displays recent Atlassian news about JIRA.
Pie Chart Gadget	The **Pie Chart** gadget displays issues from a project or issue filter, grouped by a statistic type, in pie-chart format. The issues can be grouped by any statistic type (e.g. Status, Priority, Assignee, etc).
Projects Gadget	The **Projects** gadget provides information and various filters related to a specified project(s).
Quick Links Gadget	The **Quick Links** gadget displays a number of useful links to issues associated with the current user.
Recently Created Issues Gadget	The **Recently Created Issues** gadget displays a bar chart showing the rate at which issues are being created, as well as how many of those created issues are resolved.
Resolution Time Gadget	The **Resolution Time** gadget displays a bar chart showing the average resolution time (in days) of resolved issues.
Road Map Gadget	The **Road Map** gadget shows versions which are due for release within a specified period of time, and a summary of progress made towards completing the issues in those versions.
Text Gadget *	The **Text** gadget displays a configurable HTML text on the dashboard.
Time Since Issues Gadget	The **Time Since Issues** gadget displays a bar chart showing the number of issues that something has happened to within a given time period. The 'something has happened' is based on a date field that you choose, such as 'Created', 'Updated', 'Due', 'Resolved' or a custom field.
Two Dimensional Filter Statistics Gadget	The **Two Dimensional Filter Statistics** gadget displays statistical data based on a specified filter in a configurable table format.
Voted Gadget	The **Voted Issues** gadget shows issues for which you have voted.
Watched Gadget	The **Watched Issues** gadget shows issues which you are watching.

See the big list of all Atlassian gadgets for more ideas.

** This gadget will only be available if it has been installed by your JIRA administrator.*

The Firebug add-on for Firefox can significantly degrade the performance of web pages. If JIRA is running too slowly (the JIRA dashboard, in particular) then we recommend that you disable Firebug. Read this FAQ for instructions.

Creating a Dashboard

The dashboard that you see when you first start using JIRA is a "default" dashboard that has been configured by your JIRA administrator. You cannot edit the default dashboard; but you can easily create your own dashboard, which you can then customise as you wish.

To create your own dashboard,

1. At the top right of the Dashboard, click the '**Tools**' menu.
2. Select either '**Create Dashboard**' to create a blank dashboard, or '**Copy Dashboard**' to create a dashboard that is based on the default dashboard.

You can now customise your dashboard as follows:

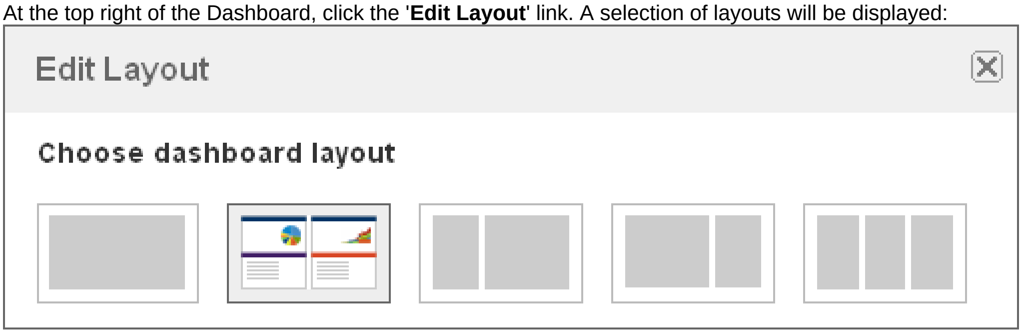
- Choosing a Dashboard Layout
- Adding a Gadget
- Moving a Gadget
- Removing a Gadget

> If you are using multiple dashboard pages, you can only configure dashboard pages that you own.

Choosing a Dashboard Layout

To choose a different layout for your dashboard page (e.g. three columns instead of two):

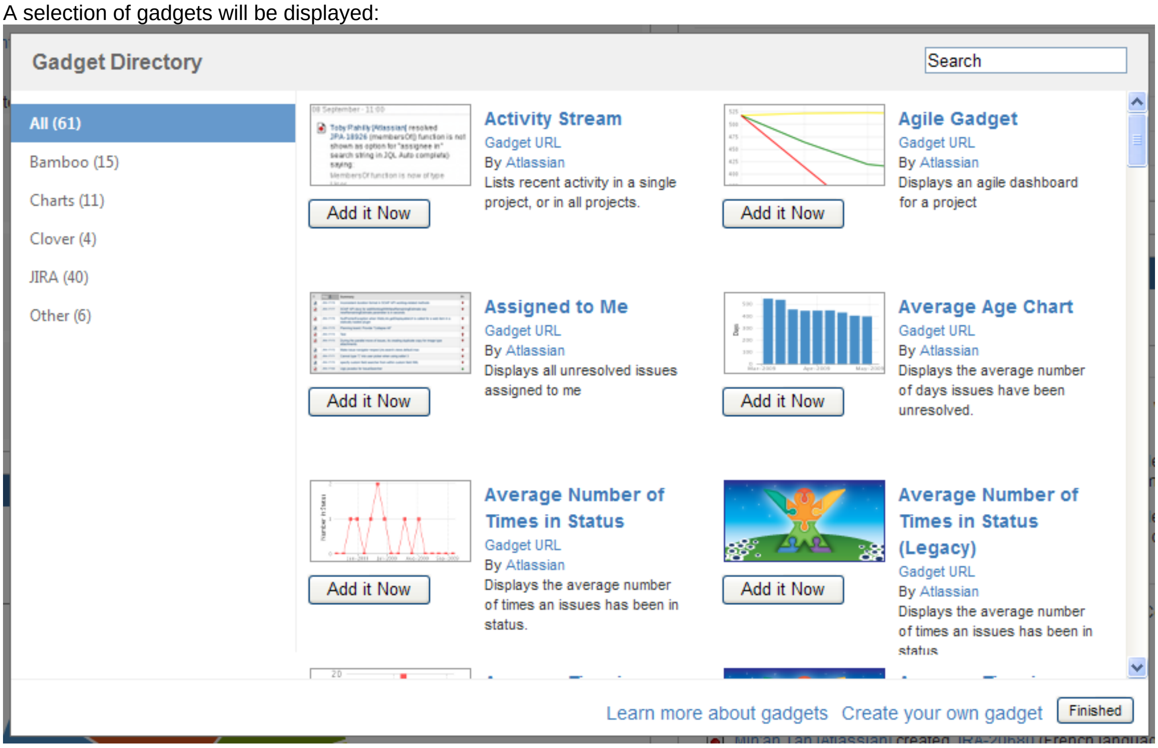
1. At the top right of the Dashboard, click the '**Edit Layout**' link. A selection of layouts will be displayed:



2. Click your preferred layout.

Adding a Gadget

1. At the top right of the Dashboard, click the '**Add Gadget**' link.
2. A selection of gadgets will be displayed:



3. Click the '**Add it now**' button beneath your chosen gadget.

4. Click the '**Finished**' button to return to your Dashboard.
5. If the gadget you have selected requires configuration, you will be presented with the gadget's configuration page. Configure appropriately and click '**Save**'.

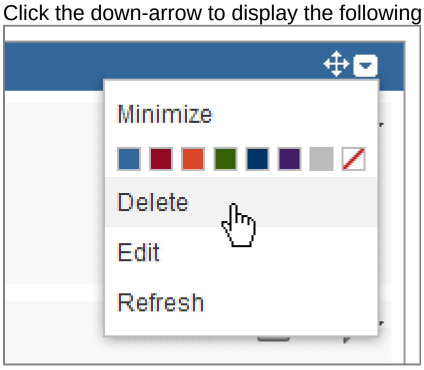
Moving a Gadget

To move a gadget to a different position on your dashboard:

- Click the gadget and drag it into its new position.

Removing a Gadget

To remove a gadget from your dashboard:

1. Hold your mouse over the top right corner of the gadget, until a down-arrow appears.
2. Click the down-arrow to display the following menu:


3. Click '**Delete**'.

RELATED TOPICS

The big list of Atlassian gadgets
The JIRA Wallboards plugin

Changing the Look and Behaviour of a Gadget

On this page:

- Hiding or Changing the Colour of the Gadget's Frame
- Minimising and Expanding a Gadget
- Opening the Maximised or Canvas View of a Gadget
- Editing a Gadget's Settings

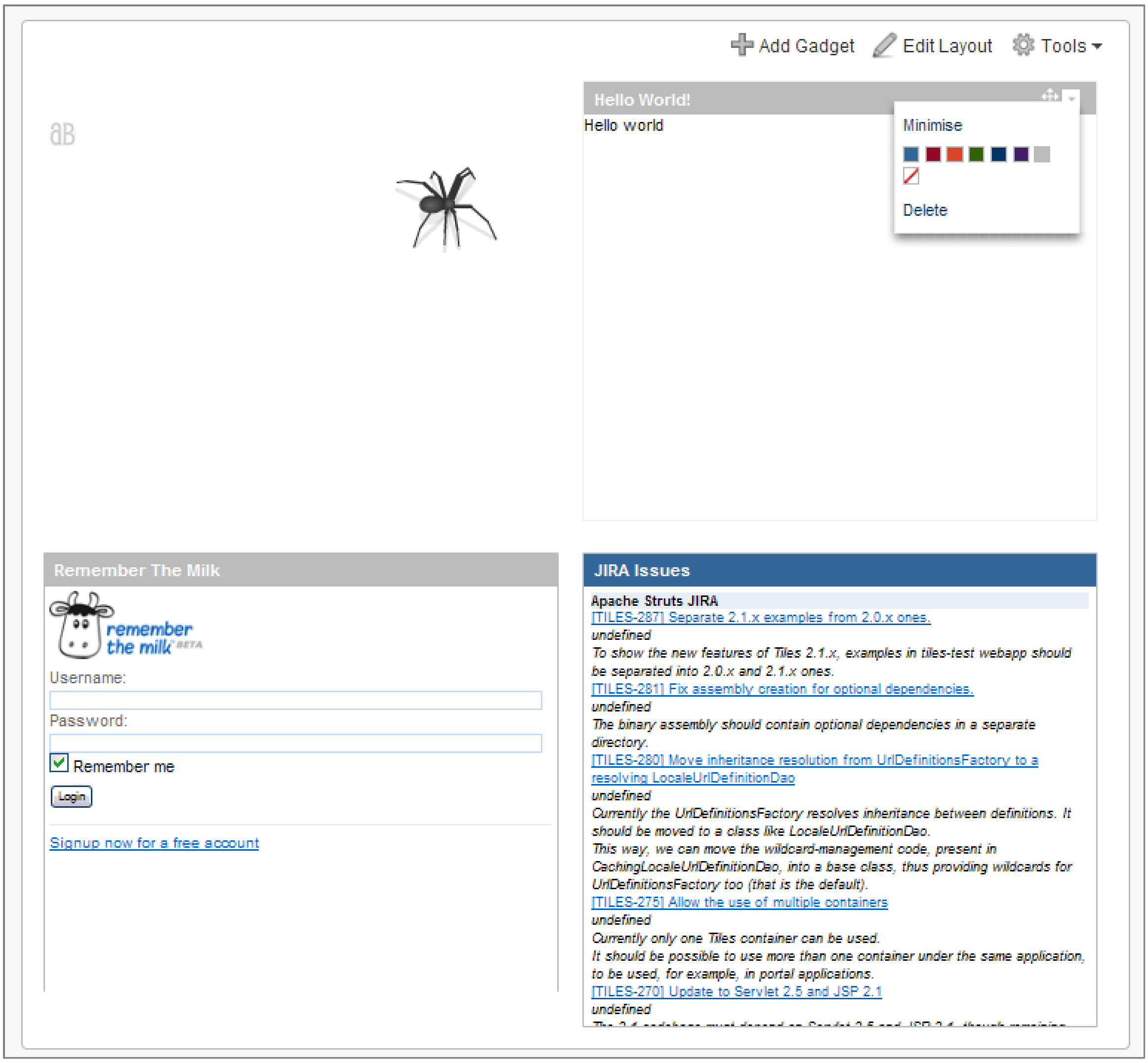
Hiding or Changing the Colour of the Gadget's Frame

You can change the colour of the frame surrounding a gadget on your dashboard. You can even hide the gadget's frame altogether, so that it only shows when you move your mouse pointer over the gadget. In the screenshot below, the top two gadgets have hidden frames. The frame for the top gadget on the left is not visible. The frame for the top gadget on the right is currently visible because the mouse pointer is hovering over the gadget.

To hide or change the colour of a gadget's frame,

1. Go to the dashboard by clicking the '**Dashboard**' link or the '**Home**' link at the top left of the screen.
2. The dashboard will appear, looking something like the screenshot below. Move your mouse pointer over the gadget you want to change. If the gadget's frame is hidden, the frame will appear now.
3. Click the dropdown menu icon at top right of the gadget frame.
4. The dropdown menu will appear, as shown in the screenshot below. Click the colour you want for your gadget's frame. To hide the gadget's frame, select the white colour box with the red line through it.

Screenshot: Hiding or changing the colour of a gadget's frame



Minimising and Expanding a Gadget

You can shrink (minimise) a gadget on your dashboard so that it displays only the top bar of the gadget frame. In the screenshot below, the top left gadget ('**Spider**') has been minimised.

- If you minimise a gadget that has a hidden frame, the gadget will not be visible on the dashboard until you move your mouse pointer over the gadget. See the section above on hiding or changing the colour of the gadget frame.
- You can minimise/expand a gadget even if you do not have update permissions on the dashboard.
- The minimise/expand setting is stored in a cookie, and is not saved to the dashboard server.

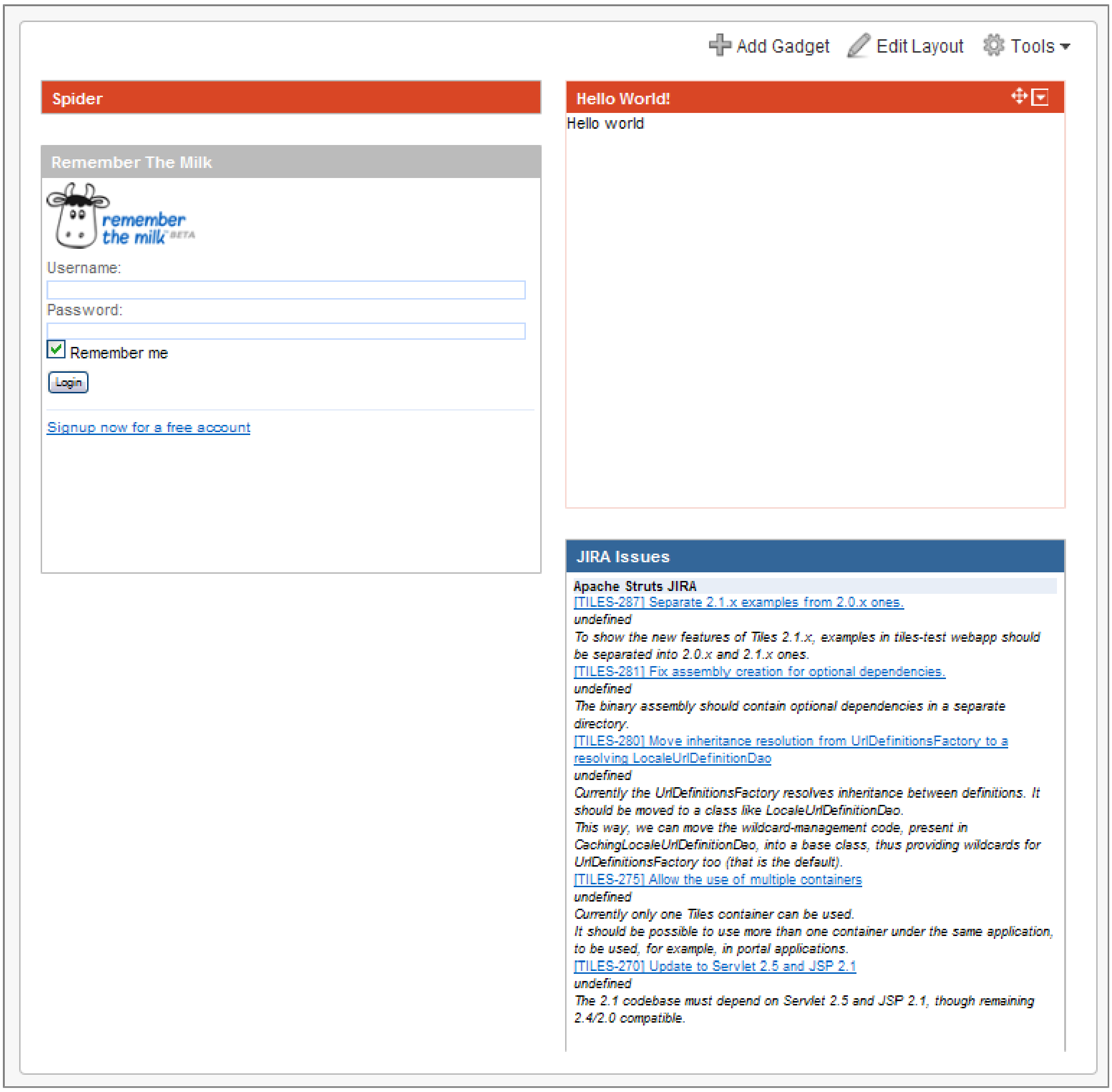
To minimise a gadget,

1. Move your mouse pointer over the gadget you want to change.
2. The gadget menu icons will appear. Click the dropdown menu icon at top right of the gadget frame.
3. The dropdown menu will appear, as shown in the screenshot above. Click '**Minimise**'.

To expand a gadget that has been minimised,

1. Move your mouse pointer over the gadget you want to change.
2. The gadget menu icons will appear. Click the dropdown menu icon at top right of the gadget frame.
3. The dropdown menu will appear. Click '**Expand**'.

Screenshot: A minimised gadget



Opening the Maximised or Canvas View of a Gadget

Some gadgets allow you to expand themselves so that they take up the entire space allowed by the dashboard. This is also known as 'canvas view'.

- The maximised or canvas view of a gadget often provides additional functionality, i.e. more than is available in the standard view of the gadget.
- This is not the same as minimising and then expanding a gadget (see above).
- Only some gadgets provide the maximised or canvas view.
- You can open the canvas view of a gadget even if you do not have update permissions on the dashboard.
- The maximised/canvas view setting is stored in a cookie, and is not saved to the dashboard server.

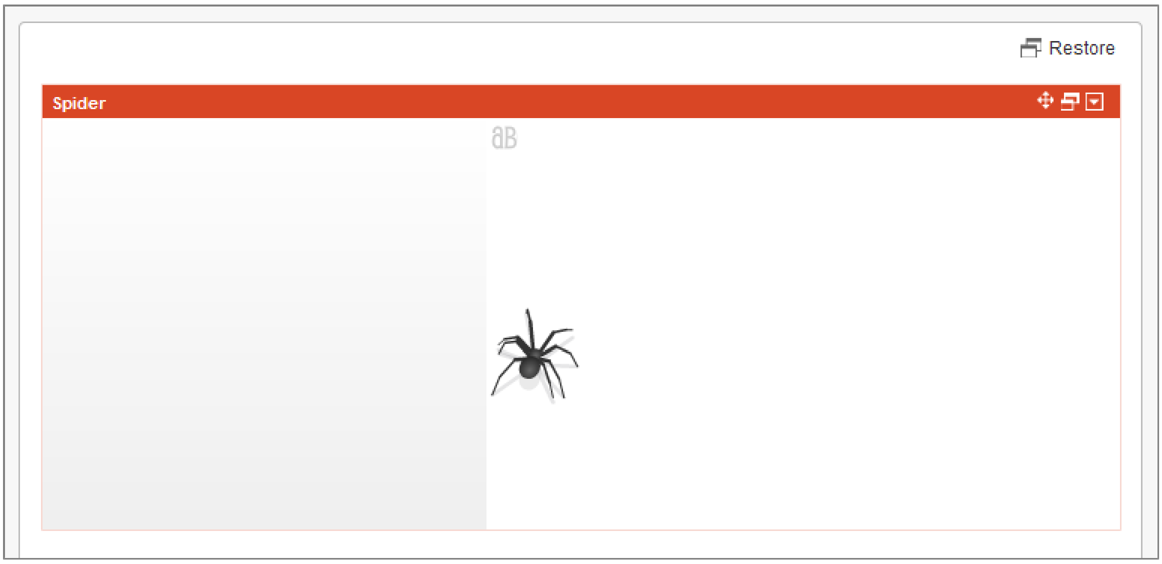
To open the maximised or canvas view of a gadget,

1. Move your mouse pointer over the gadget you want to change.
2. The gadget menu icons will appear. Click the maximise icon  at top right of the gadget frame. This icon will appear only if the gadget provides a maximised or canvas view.
3. The gadget's maximised view will open, as shown in the screenshot below.

To close the canvas view and return to your dashboard,

1. Click the '**Restore**' option at the top right of the screen, or the '**Restore**' icon at top right of the gadget frame.

Screenshot: The maximised or canvas view of a gadget



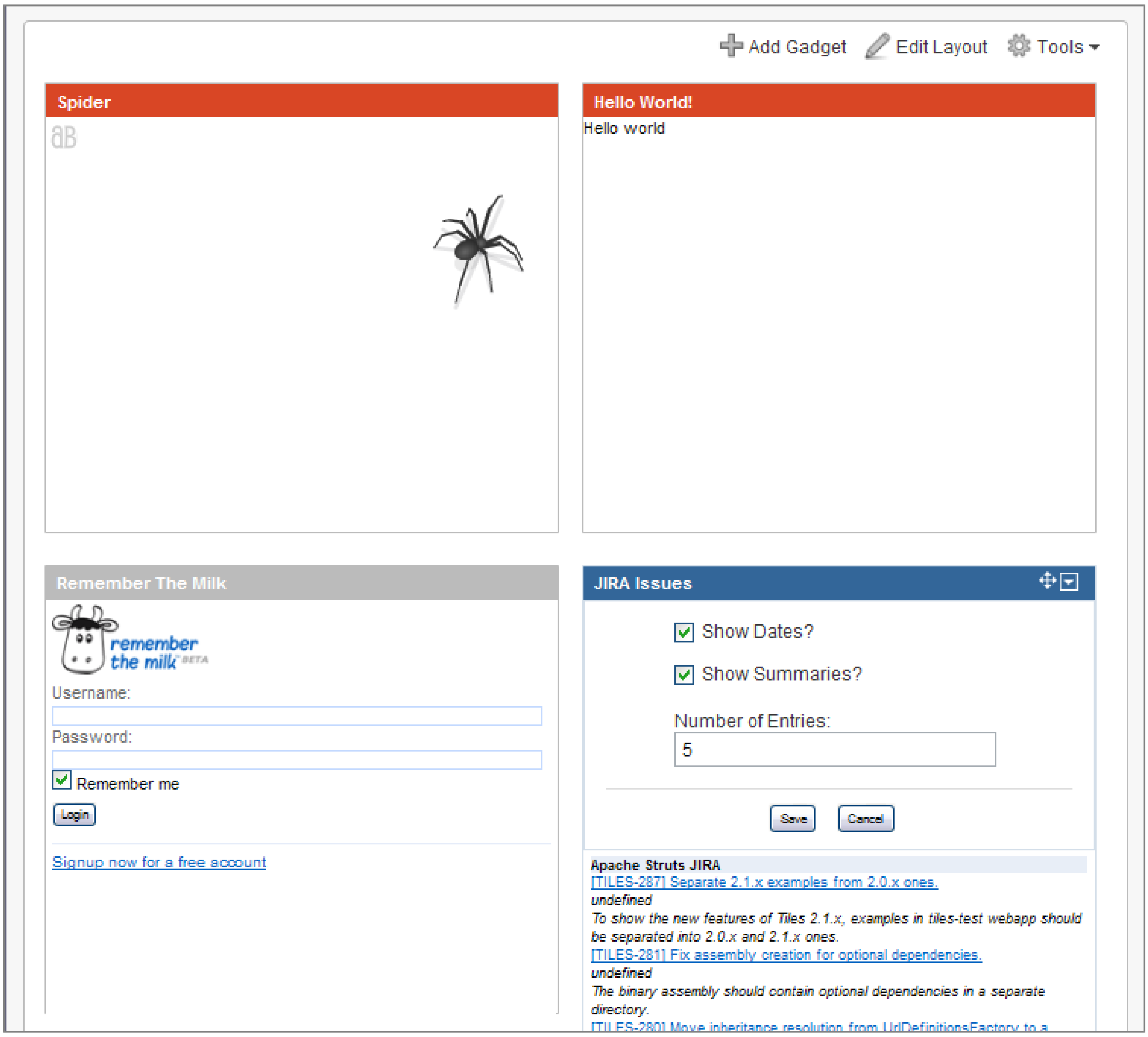
Editing a Gadget's Settings

Some gadgets provide specific properties or settings that you can edit. These settings will be different for each gadget. For example, a gadget may allow you to customise its welcome message, or to define the server where the gadget will find its information.

To edit a gadget's settings,

1. Move your mouse pointer over the gadget you want to change.
2. The gadget menu icons will appear. Click the dropdown menu icon  at top right of the gadget frame.
3. The dropdown menu will appear. Click '**Edit**'.
4. A panel will open, showing the settings offered by the selected gadget. In the screenshot below, the bottom two gadgets have their settings panels open.
5. Adjust the settings as required then click '**Save**'.

Screenshot: Editing a gadget's settings



Managing Multiple Dashboard Pages

JIRA allows you to configure more than one dashboard page. Each dashboard page can be configured independently, allowing you to neatly organise related information by context. You can also share your dashboard pages with other users, as well as adding dashboards shared by other users as favourites.

Each dashboard page appears as a separate "tab" on the dashboard. You can view a dashboard page by simply clicking its name in the tab list.

On this page:

- Managing your Dashboard
- Creating new Dashboard Pages
- Displaying a Dashboard Page on your Dashboard ('Favourite Dashboards')

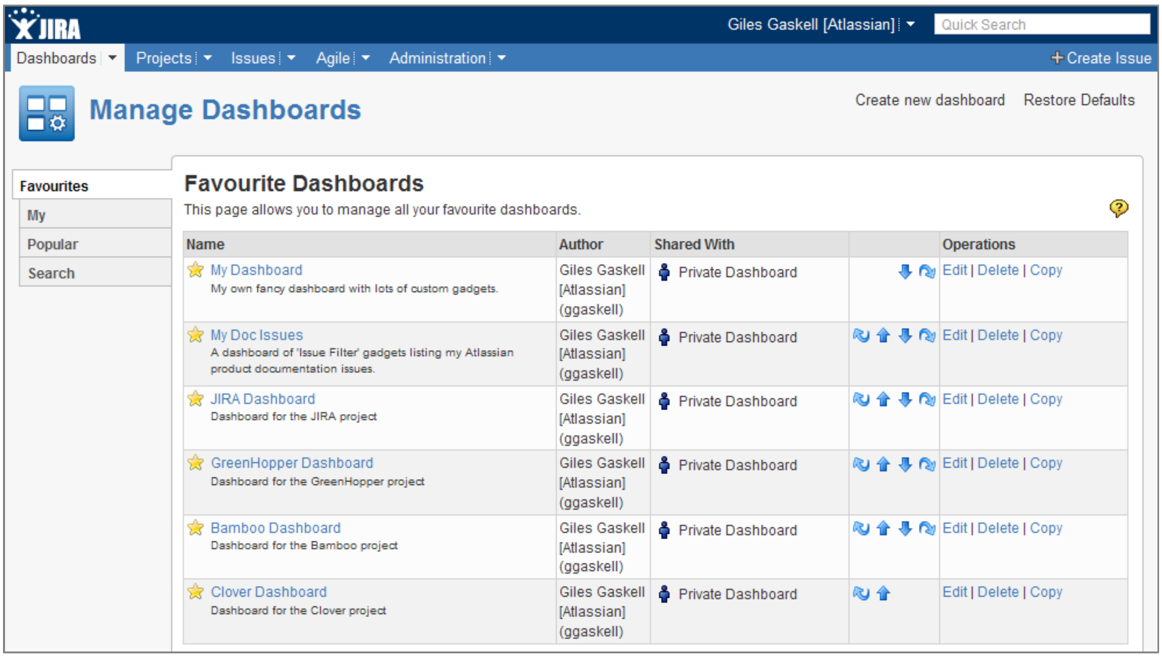
- Sharing Dashboard Pages
- Finding an existing Dashboard Page
- Editing an existing Dashboard Page's details
- Copying an existing Dashboard Page
- Deleting an existing Dashboard Page

Managing your Dashboard

The '**Manage Dashboards**' page allows you to view and configure dashboard pages that you have created, as well as work with dashboard pages that other users have shared with you.

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. The 'Manage Dashboards' page will display. From this page, you can:
    - Create a new dashboard page.
    - Add a dashboard page as a favourite.
    - Share a dashboard page that you have created, with other users.
    - Search for dashboard pages that has been created by you or shared with you by other users.
    - Configure an existing dashboard or edit an existing dashboard's details of a dashboard that you have created.
    - Copy a dashboard page that has been created by you or shared with you by other users.
    - Delete a dashboard page that you have created.

Click the above links for further details on each function.



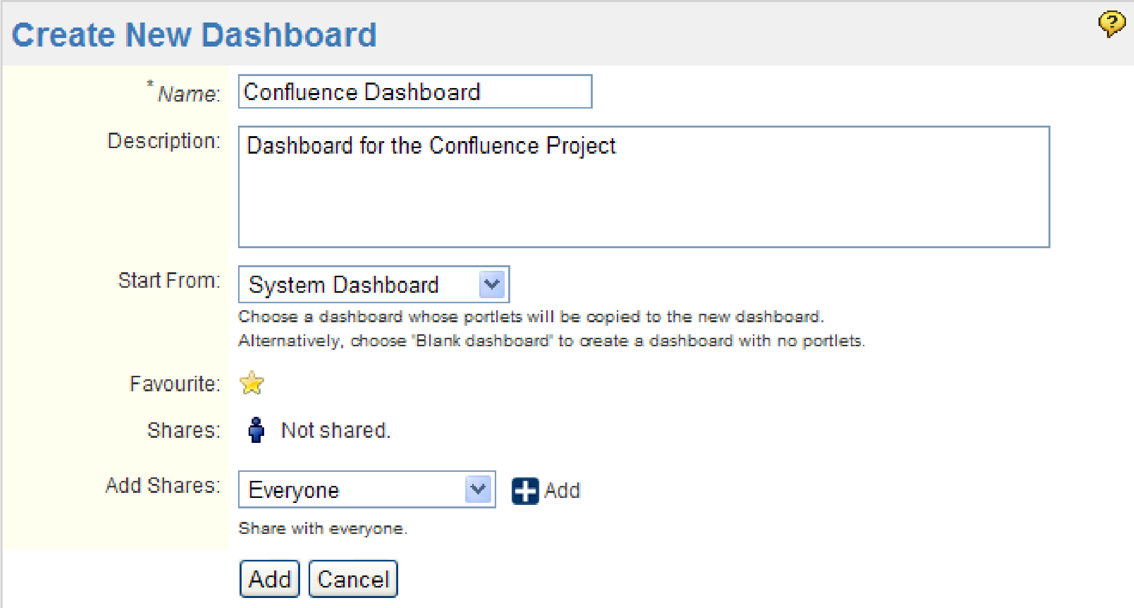
You can also re-order your dashboard pages on this page, by using the arrow icons:

Move a dashboard up	Click the up arrow ( ) for the dashboard that you wish to move.
Move a dashboard down	Click the down arrow ( ) for the dashboard that you wish to move.
Move a dashboard to the top of the list	Click the curly up arrow ( ) for the dashboard that you wish to move.
Move a dashboard to the bottom of the list	Click the curly down arrow ( ) for the dashboard that you wish to move.

Creating new Dashboard Pages

To create a new dashboard page please follow these steps:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu. The 'Manage Dashboards' page will display. This page lists all currently configured dashboard pages.
2. Click the '**Create new dashboard**' link. The 'Create new dashboard' page will display.



Provide a name for the new dashboard page and optionally enter a short description. You can also choose an existing page as a starting point for the new page. This means that the configuration of the existing page will be duplicated for the newly created page. Alternatively, if you would like to create a page with no gadgets, leave the 'Blank dashboard' option selected.

3. Your new dashboard page will be added as a 'favourite' dashboard page by default upon creation, which means that it will display as a tab on your JIRA dashboard. If you do not wish to display this dashboard page as a tab on your JIRA dashboard, deselect the star icon. You can add the dashboard page as a favourite after it has been created. Read more about adding an existing dashboard page as a favourite.
4. The sharing of your new dashboard page depends on your sharing preference in your user profile. If you have not specified a personal preference, then the global default for sharing will apply (i.e. 'Private', unless changed by your JIRA Administrator under 'User Defaults' in the Administration menu). If you wish to change the sharing of your dashboard page, refer to the instructions on sharing dashboard pages below.

> Please note, you need the 'Create Shared Object' global permission to be able to share your dashboard page. If you cannot see any dashboard sharing functionality, contact your JIRA Administrator to be granted this permission.

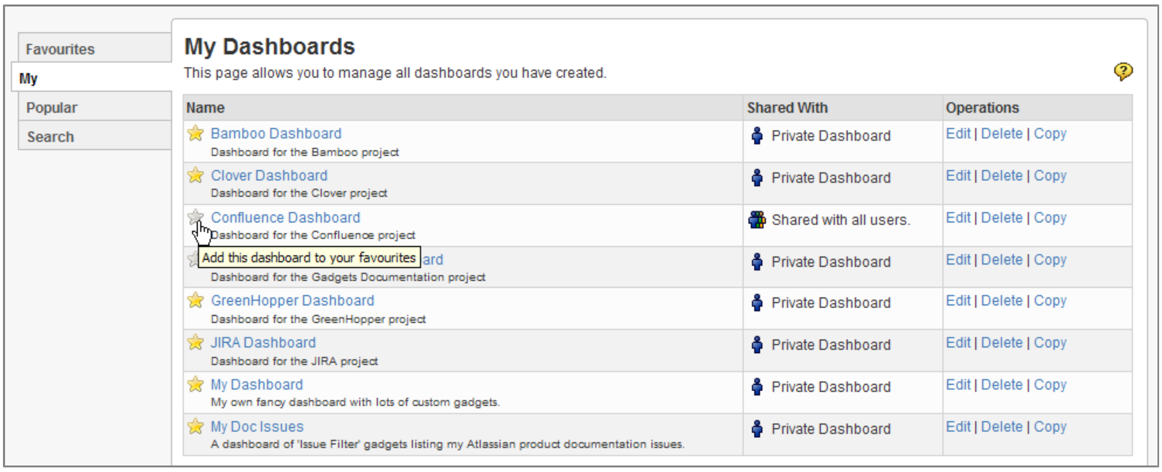
5. Click the '**Add**' button. Your new page will be listed under the 'My' tab of the 'Manage Dashboards' page. If you selected the new dashboard page as a favourite, it will also appear under the 'Favourite' tab and will be displayed as a tab on your JIRA dashboard.
6. If you need to configure the gadgets on your new dashboard page, click the '**Full configure**' link in the 'Operations' column to proceed to the dashboard configuration interface.

Displaying a Dashboard Page on your Dashboard ('Favourite Dashboards')

Dashboard pages that you have created, or that have been shared by other people, can be added as a 'favourite'. This means that the dashboard page will appear as a tab on the left side of your browser window, when viewing your JIRA dashboards. There is no restriction on the number of dashboards that you can add as a 'favourite' and each of these will appear on an individual tab when viewing your JIRA dashboards.

To add an existing dashboard page to your dashboard:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. The 'Manage Dashboards' page will display. Locate the dashboard page that you wish to display on your dashboard. If you created the dashboard, it will be listed under the 'My' tab, otherwise you can search for dashboards shared by other users via the 'Search' tab.
   - Your favourite dashboards are shown with a yellow star.
   - Dashboards that are not currently your favourites are shown with a grey star.
3. Click the grey star icon next to the name of the desired dashboard page to add it as a favourite. The dashboard page will be displayed on your main dashboard.



Please note, if you have added another user's shared dashboard as a favourite and a gadget(s) is not displaying correctly, the gadget(s) may be using an issue filter that is not shared with you. You will need to contact the author of the issue filter to change the filter sharing.

To remove a dashboard page from your dashboard:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. The 'Manage Dashboards' page will display. Locate the dashboard page that you wish to remove from your dashboard under the 'Favourites' tab.
3. Click the star icon next to the name of the dashboard page. The dashboard page will be removed from your main dashboard.

Please note, if you do not have any dashboard pages added as favourites, the default dashboard will be displayed on your dashboard with an error message. You can choose to keep the default dashboard displayed on your dashboard, but you will need to add it as a favourite to stop the error message from showing. You may need to search for the 'System Default' dashboard to add it as a favourite.

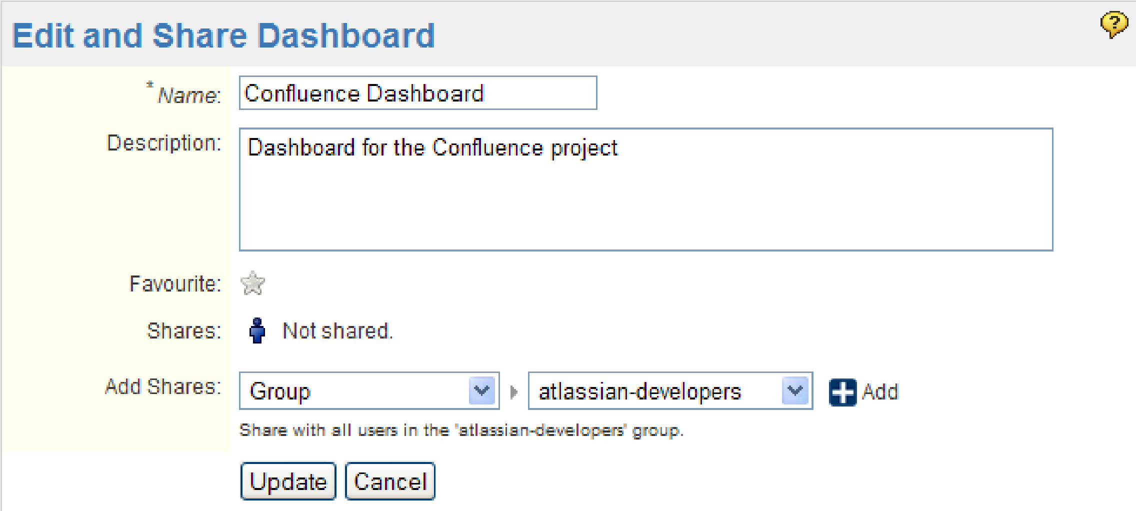
Sharing Dashboard Pages

JIRA also allows you to share any dashboard pages that you have configured. Dashboard pages can be shared with other users via user groups, projects and project roles. Dashboard pages can also be shared globally. Sharing a dashboard page allows other users to display it on their JIRA dashboard, by selecting it as a favourite.

Please note, you may need to review the sharing permissions for any issue filters used in portlets on your shared dashboard. If another user adds your dashboard as a favourite, but cannot access a filter for a portlet, then the portlet will display with an error message.

To share an existing dashboard page to the dashboard please follow these steps:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. The 'Manage Dashboards' page will display. Locate the dashboard page that you wish to display on your dashboard under the 'My' tab and click the '**Edit**' link for the dashboard in the '**Operations**' column.
3. The 'Edit Dashboard' page will display. Select the group, project or project role that you want to share the dashboard with, or share it with all users, if you wish. Click the '**Add**' link to add the share. You can add further share permissions if you wish.
4. Click the '**Update**' button to save your changes.



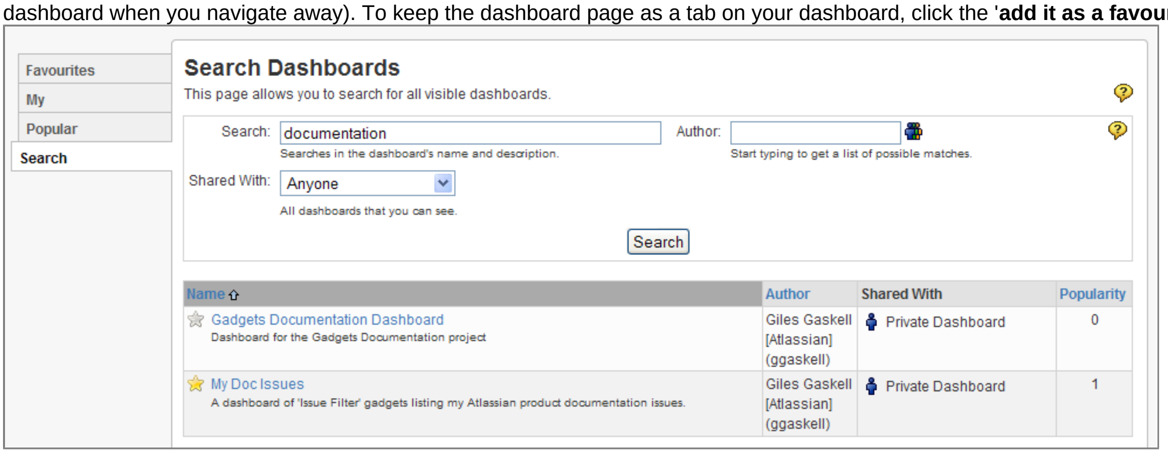
Please note, you be able to share your dashboard only with the groups that you are member of.

Finding an existing Dashboard Page

Dashboard pages that you have created or have been shared by other users, can be found via the dashboard Search function of the 'Manage Dashboards' page. If it is a popular dashboard (i.e. added as a favourite by many users), you can also locate it on the 'Popular' tab of the 'Manage Dashboards' page which lists the top twenty most popular dashboards.

Follow the steps below to search for an existing dashboard page:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. Click the '**Search**' tab. The dashboard Search will display. Enter your search criteria and click '**Search**' to run the search.
3. Your search results will be displayed on the same page. You can sort the search results by any of the columns, by clicking the column headers. Click the name of any dashboard page to temporarily display it on your dashboard (i.e. it will be removed from your dashboard when you navigate away). To keep the dashboard page as a tab on your dashboard, click the '**add it as a favourite**' link.

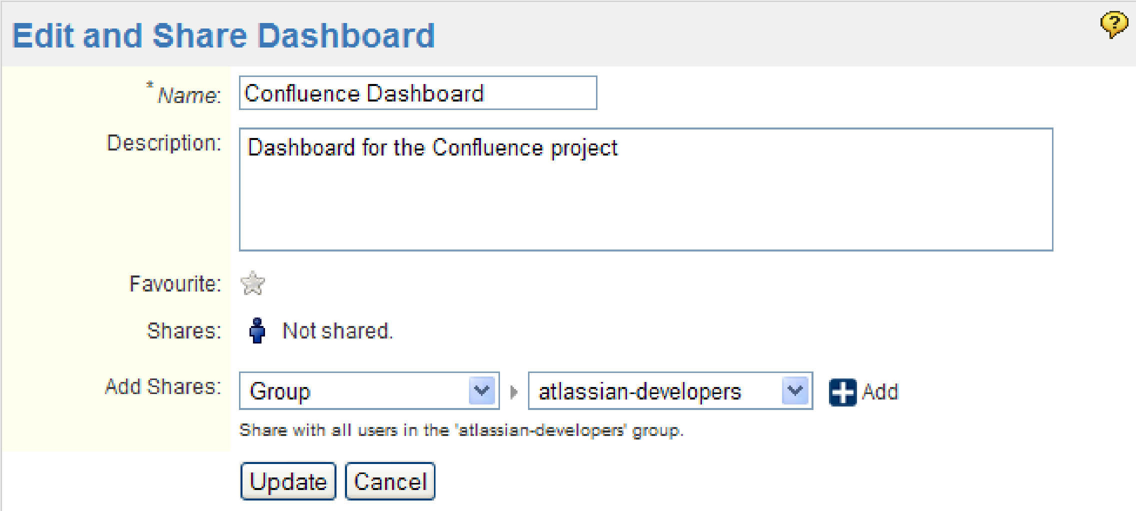


Editing an existing Dashboard Page's details

You can always update the details, i.e. Name, Description, Sharing, Favourite, of an existing dashboard page after its creation. Please note that you can only update the details of dashboard pages which you have created.

Follow the steps below to update the details of one of your existing dashboard pages:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. The 'Manage Dashboards' page will display. Locate the dashboard page that you wish to update and click the '**Edit**' link for the dashboard in the 'Operations' column.
3. The 'Edit Dashboard' page will display. Update the details of the dashboard page as desired. If you wish to change the sharing or favourite settings for the dashboard page, refer to the relevant instructions above.



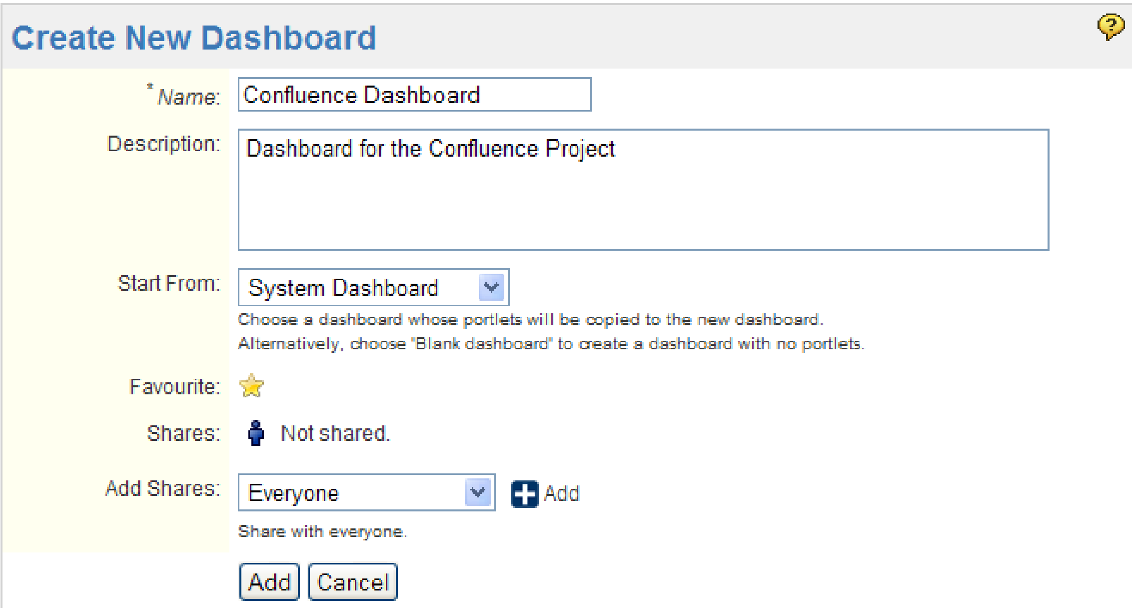
4. Click the '**Update**' button to save your changes.

Copying an existing Dashboard Page

You can make a copy of an existing dashboard page (created by you or shared with you), which creates a new dashboard page with the same gadget configuration as the existing dashboard page.

Follow the steps below to update the details of one of your existing dashboard pages:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. The 'Manage Dashboards' page will display. Locate the dashboard page that you wish to copy and click the '**Copy**' link for the dashboard in the 'Operations' column.
3. The 'Create New Dashboard' page will display. Update the details of the dashboard page as desired. If you wish to change the sharing or favourite settings for the dashboard page, refer to the relevant instructions above.

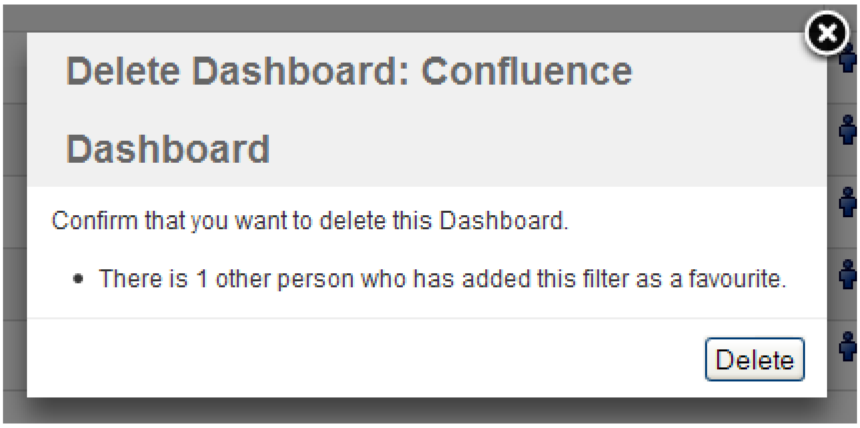


4. Click the '**Add**' button to save your changes.

Deleting an existing Dashboard Page

Follow the steps below to delete a dashboard pages. Please note that you can only delete dashboard pages that you created:

1. At the top left of the dashboard, click the down-arrow on the '**Dashboards**' tab and select '**Manage Dashboard**' from the drop-down menu.
2. The 'Manage Dashboards' page will display. Locate the dashboard page that you wish to copy and click the '**Delete**' link for the dashboard in the 'Operations' column.
3. A confirmation message box will appear. This message will also inform you if (and how many) other users have selected this dashboard as a favourite. If you wish to continue with the deletion, click the '**Delete**' button. Otherwise, click the '**x**' in the top right of the message box to cancel this action.



Be aware that deleting a dashboard which other users have marked as a favourite will prevent these users from accessing that dashboard in future.

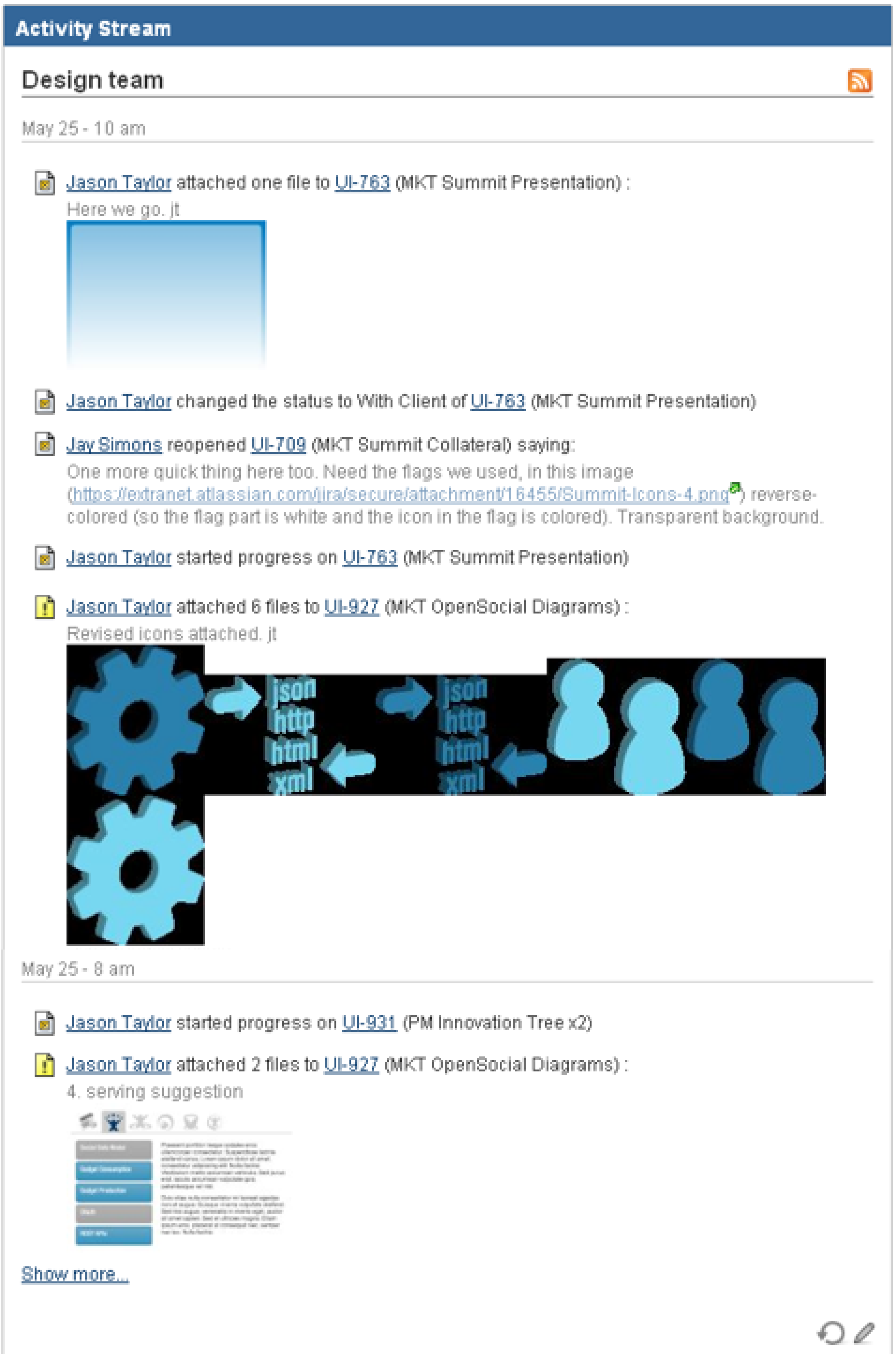
Adding the Activity Stream Gadget

The **Activity Stream** gadget displays a summary of recent activity in JIRA projects (and/or by particular people) in which you are interested.

The '**Activity Stream**' gadget also provides an RSS feed, allowing you to create very specific RSS feeds of only the information that is most relevant to you. Simply add the '**Activity Stream**' gadget to your dashboard, specify the people/projects of interest (see instructions below), then click the RSS icon: .

What does it look like?

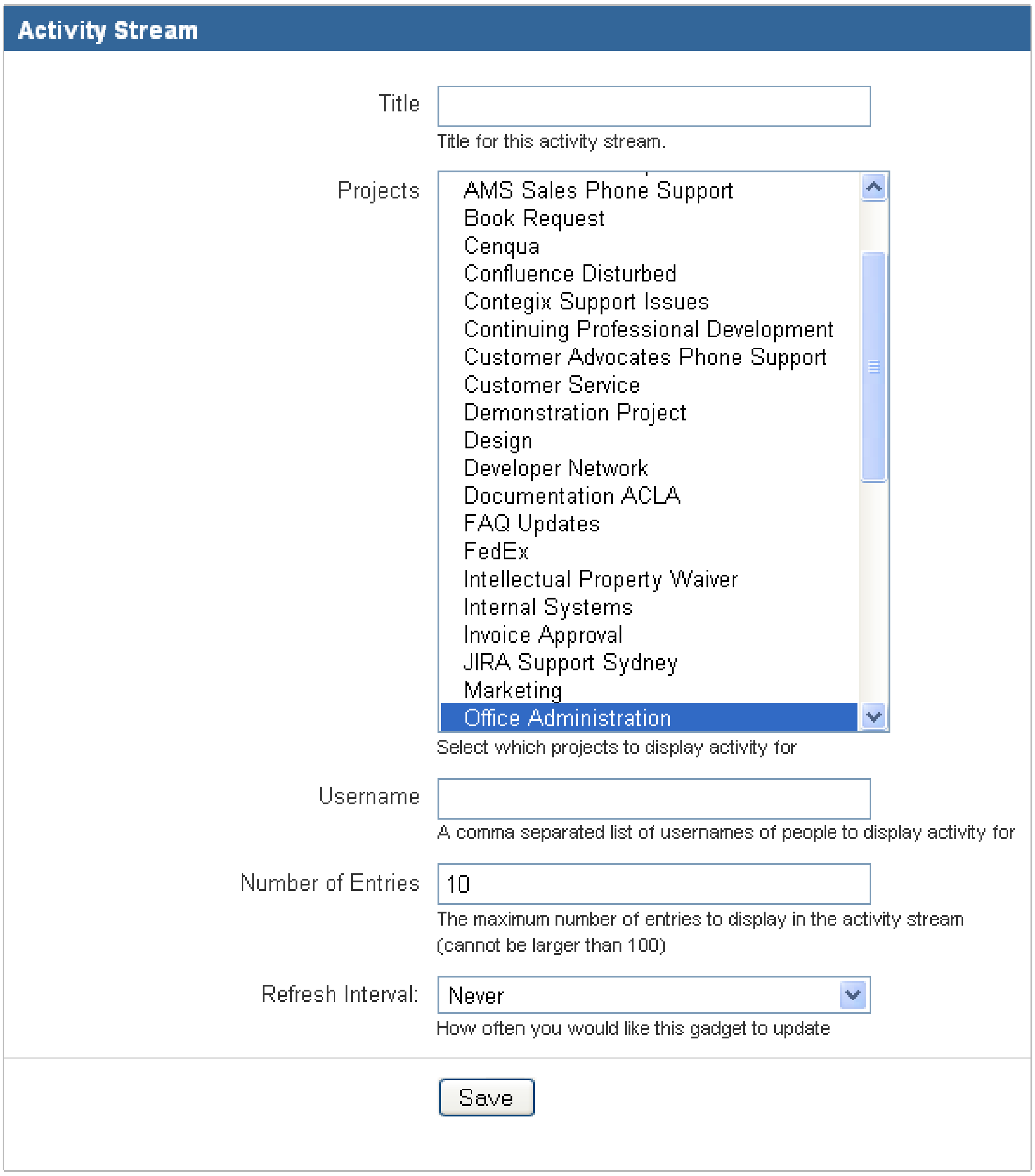
The **'Activity Stream'** gadget should appear as follows on the dashboard:



Note that you can comment directly on items in the activity stream (if you have the appropriate permission). Just hover over the item and click the comment icon that appears.

Adding the 'Activity Stream' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Activity Stream**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Activity Stream gadget will appear on your dashboard as follows, ready for you to configure:



a. '**Title**' — type a heading for this gadget.
b. '**Projects**' — select one or more projects (or 'All Projects') for which to display activity.
c. '**Username**' — type the usernames of one or more people whose activity you wish to display (or leave blank to display everyone's activity).
d. '**Number of Entries**' — type the number of activities that you want the gadget to display.
e. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).

4. Click the **'Save'** button.

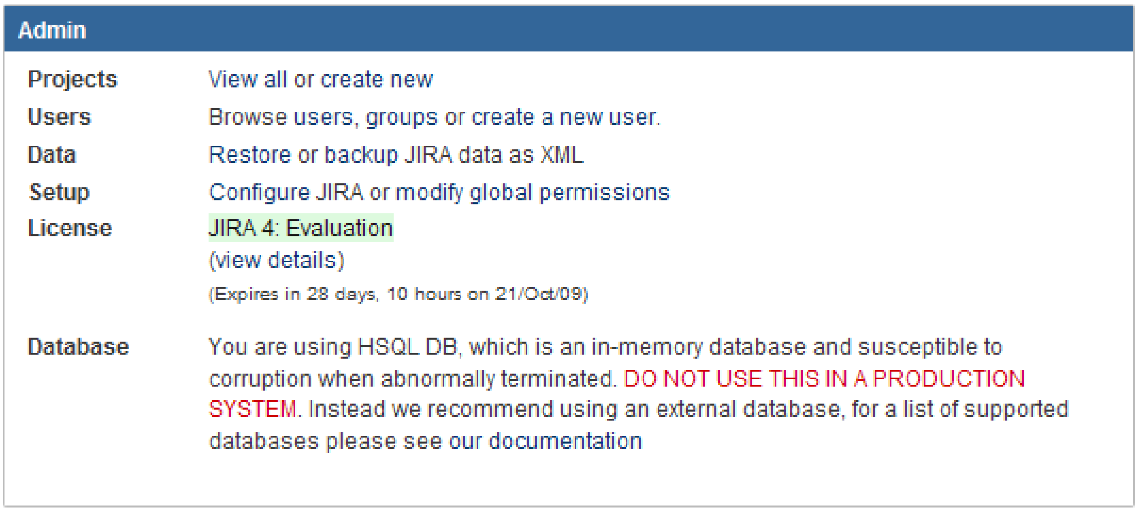
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Administration Gadget

The **Administration** gadget displays quick links to administrative functions conveniently on the dashboard. This gadget is for people who have the **'JIRA Administrators'** or the **'JIRA System Administrators'** global permission.

What does it look like?

The **'Administration'** gadget should appear as follows on the dashboard:



Note: if you only have the **'JIRA Administrators'** permission (and not the **'JIRA System Administrators'** permission), the following words will not be links: 'Restore', 'Backup' and 'License: view details'.

Adding the 'Administration' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Admin**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.

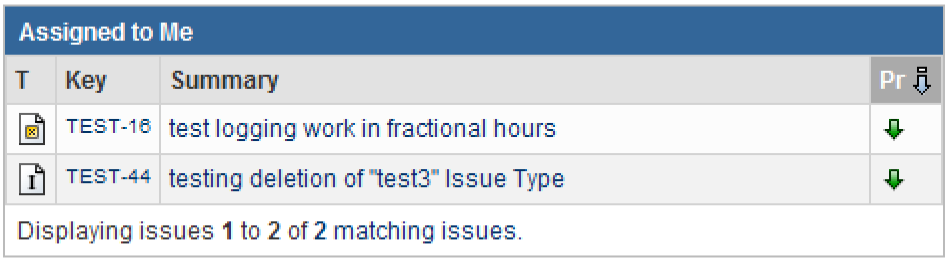
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Assigned To Me Gadget

The **Assigned To Me** gadget displays all open issues in all projects assigned to the current user viewing the dashboard.

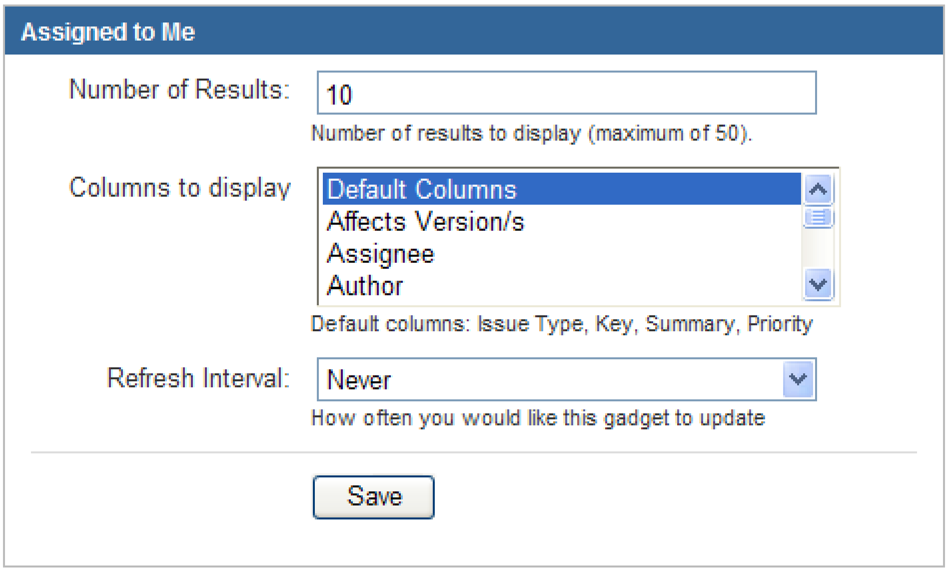
What does it look like?

The **Assigned to Me** gadget should appear as follows on the dashboard:



Adding the 'Assigned To Me' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Assigned To Me**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The 'Assigned To Me' gadget will appear on your dashboard as follows, ready for you to configure:



a. '**Number of Results**' — type the number of issues you would like the gadget to display per page (maximum 50).
b. '**Columns to display**' — select the column(s) representing the issue fields you would like the gadget to display. The default columns are: Issue Type, Key, Summary, Priority.
c. '**Refresh Interval**' — select how often you want the gadget to update the list of issues (never / every 15 minutes / every 30 minutes / every hour / every two hours).

4. Click the **'Save'** button.

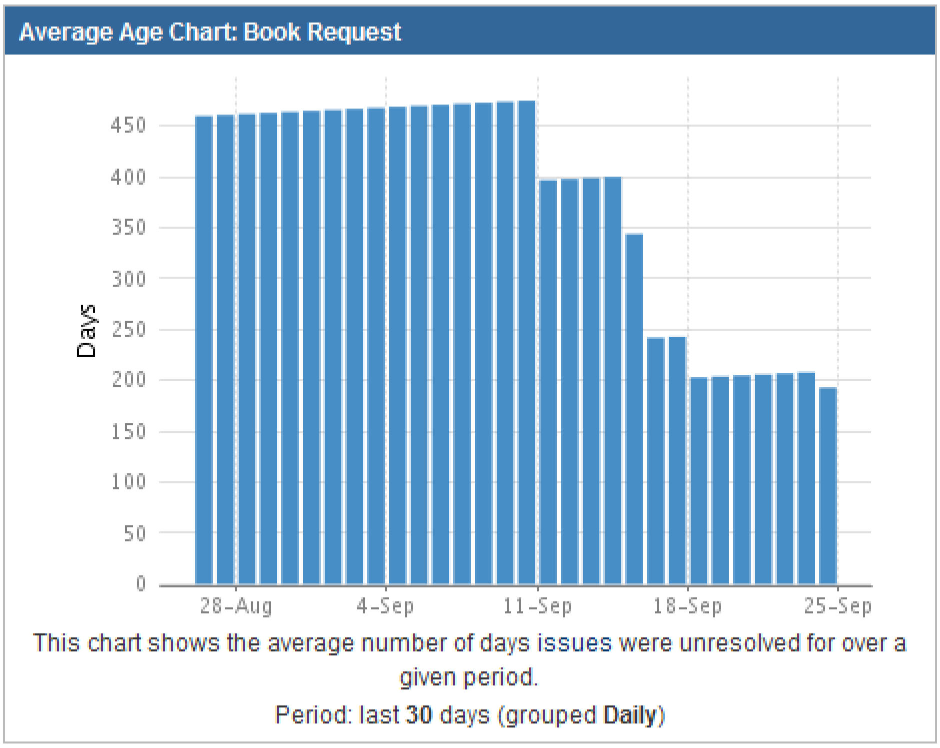
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Average Age Gadget

The **'Average Age'** gadget displays a bar chart showing the average age (in days) of unresolved issues at given points in time. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

What does it look like?

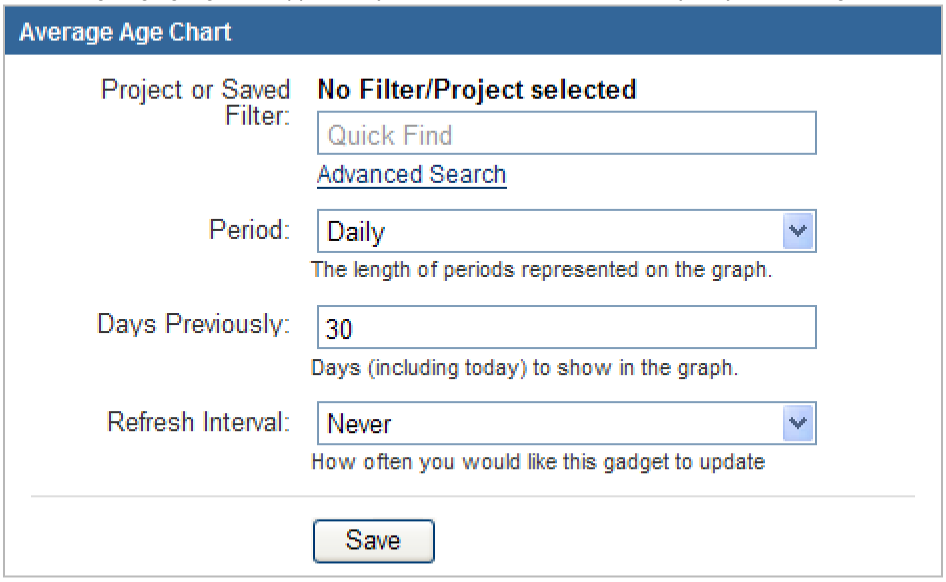
The **'Average Age'** gadget will appear as follows on the dashboard:



A report showing this information is also available.

Adding the 'Average Age' gadget to your Dashboard

To add the **'Average Age'** gadget to your dashboard:

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Average Age**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Average Age gadget will appear on your dashboard as follows, ready for you to configure:


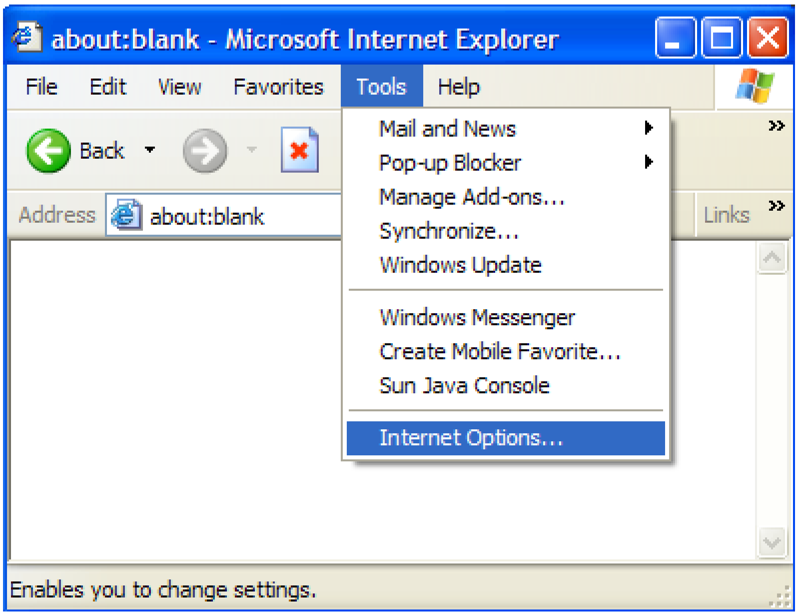
    a. '**Project or Saved Filter**' — start typing the name of the project (or saved filter) on whose issues the chart will be based. Alternatively, if you're unsure of the name of the project or filter you're looking for, click '**Advanced Search**' to search for a project (or saved filter) whose name contains particular text; or a saved filter that was created by a particular user and/or is shared with particular users.
    b. **'Period'** — select the timeframe on which the chart will be based:
        - **'Hourly'**
        - **'Daily'**
        - **'Weekly'**
        - **'Quarterly'**
        - **'Yearly'**
    c. **'Days Previously'** — enter the number of days' worth of data (counting backwards from today) to be included in the chart.
    d. '**Refresh Interval**' — select how often you want the gadget to update the chart (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

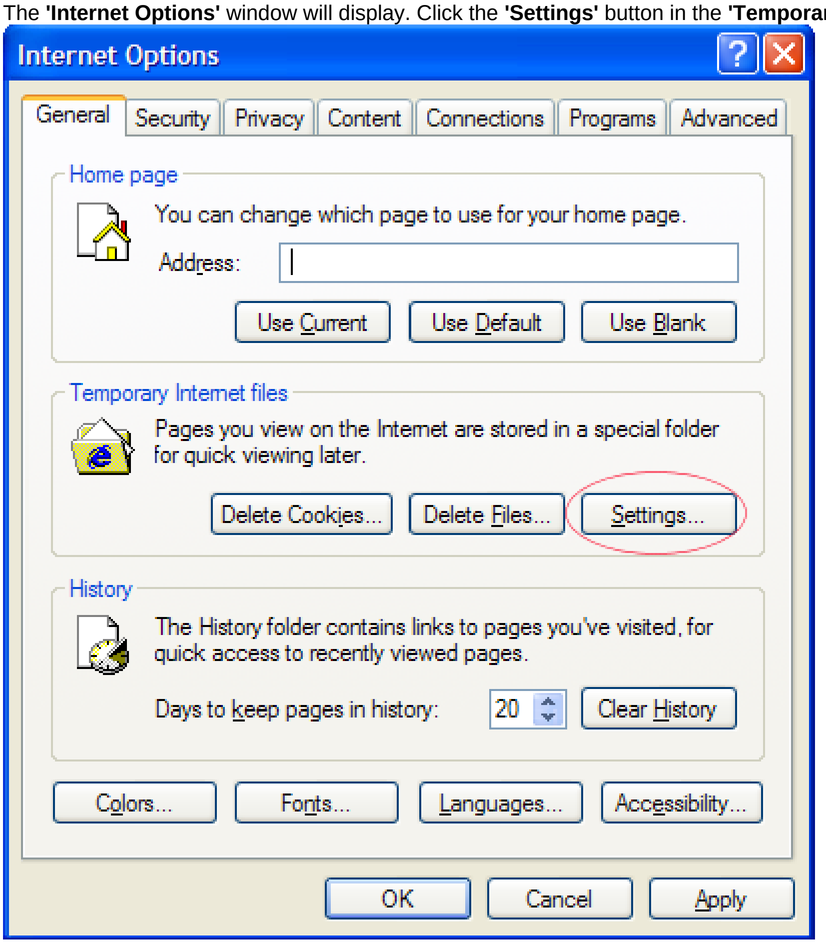
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

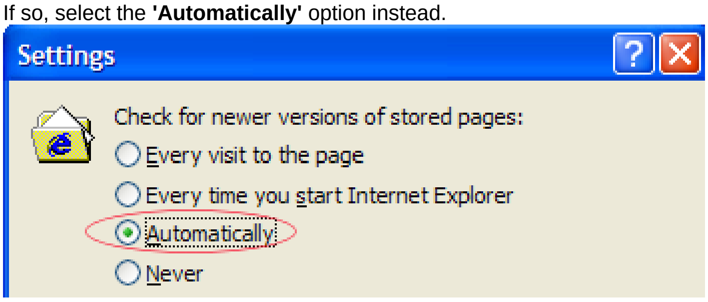
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



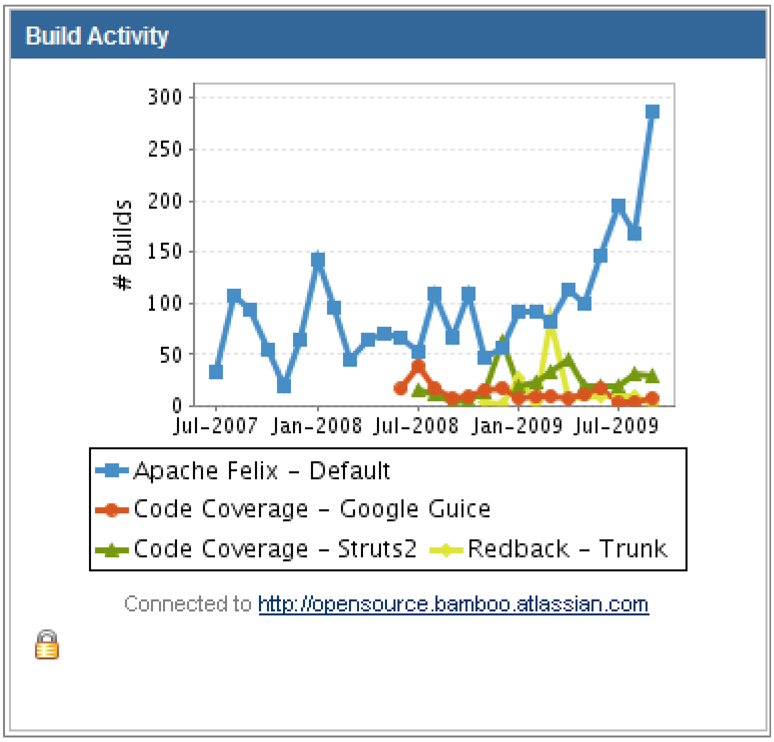
Adding the Bamboo Charts Gadget

The **Bamboo Charts** gadget displays various charts and plan statistics from a particular Bamboo server.

What does it look like?

The **Bamboo Charts** gadget should appear as follows on the dashboard:

Screenshot: 'Bamboo Charts' gadget



The Bamboo Charts gadget will only be available to add to your dashboard if your JIRA administrator has configured the Bamboo plugin on your JIRA server. Also, if you have added multiple Bamboo servers in JIRA there will be one Bamboo Charts gadget available per server, e.g. 'Bamboo Charts Gadget from http://172.20.5.83:8085', 'Bamboo Charts Gadget from http://172.19.6.93:8085', etc.

Adding the 'Bamboo Charts' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Bamboo Charts**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory. The 'Bamboo Charts' gadget will appear on your dashboard as follows, ready for you to configure.
3. Click the arrow in the top right corner of the gadget to open the configuration menu and click '**Edit**'. Configure the Bamboo information to be displayed on your gadget as follows:
    - **'Select Report Type'** — Select the Bamboo report that you would like to display as a chart.
    - **'Select Plans'** — Select the plans that you would like included in the chart.
    - **'Group By'** — Select the time interval to group by in your chart.
    - **'Show Builds From'** — Select how many days worth of builds you would like to include.
    - **'Refresh Interval'** — Select how often you would like the information on the gadget to update.
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Authorising JIRA to Display Bamboo Gadgets
When you add this gadget to your JIRA dashboard, you may see a message similar to this:

> *The website (container) you have placed this gadget on is unauthorised. Please contact your system administator to have it approved.*

To fix this problem, you will need to configure your Bamboo site to allow JIRA to draw information from it via gadgets on the JIRA dashboard. To do this, your JIRA administrator first needs to define your JIRA site as an OAuth consumer in Bamboo. You will then be required to perform a once-off authentication before your gadget will display correctly.

Adding the Bamboo Plan Summary Chart Gadget

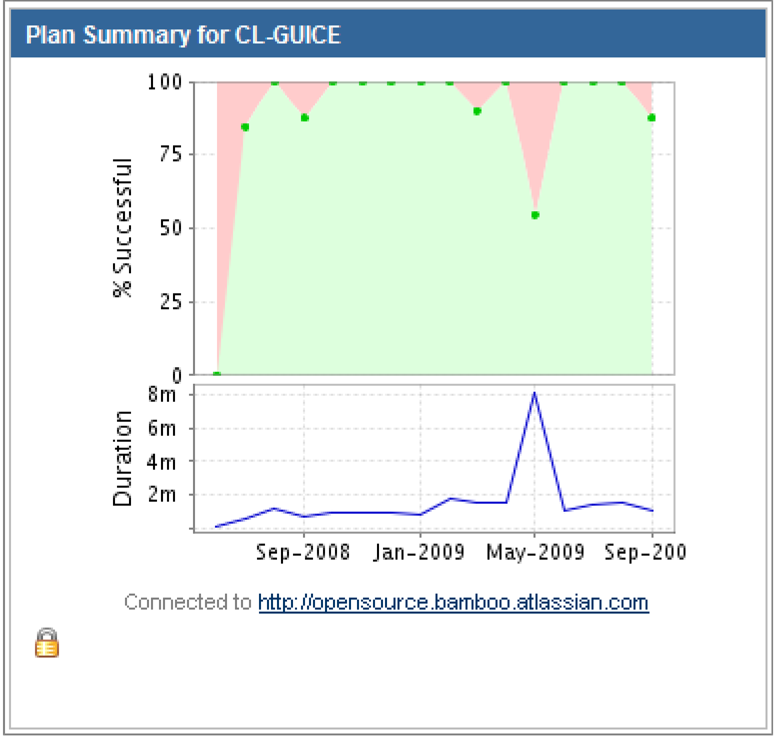
The **Bamboo Plan Summary Chart** gadget displays a graphical summary of a Bamboo build plan from a particular Bamboo server.

What does it look like?

There are two graph types available with the **Bamboo Plan Summary Chart** gadget:

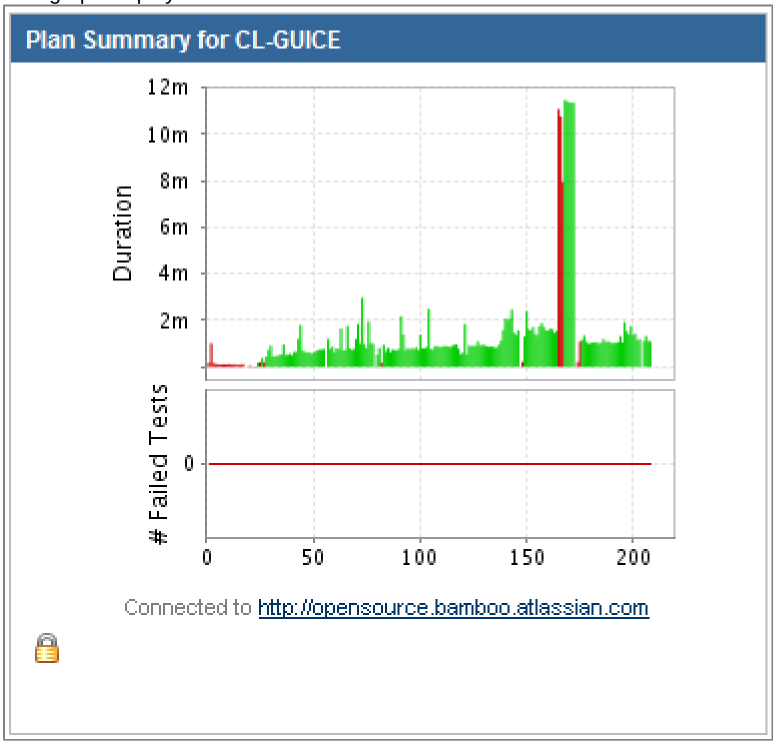
1. Group By Time Period

This graph displays the percentage of successful builds over time and the average duration of the builds in each time period:



2. Group By Build

This graph displays the duration of each of the builds and the number of failed tests per build.:



The Bamboo Plan Summary gadget will only be available to add to your dashboard if your JIRA administrator has configured the Bamboo plugin on your JIRA server. Also, if you have added multiple Bamboo servers in JIRA there will be one Bamboo Status gadget available per server, e.g. 'Bamboo Status Gadget from http://172.20.5.83:8085', 'Bamboo Status Gadget from http://172.19.6.93:8085', etc.

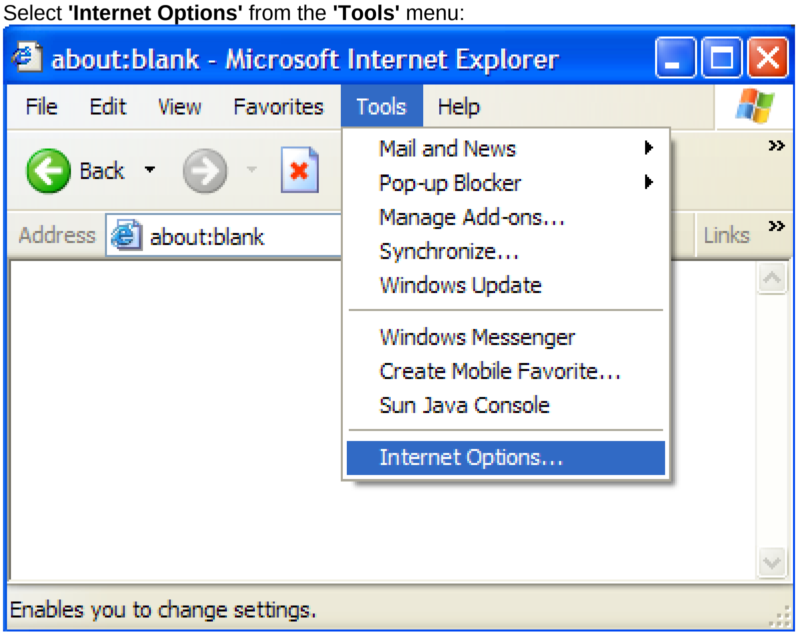
Adding the 'Bamboo Plan Summary Chart' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Bamboo Plan Summary Chart**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory. The 'Bamboo Plan Summary Chart' gadget will appear on your dashboard as follows, ready for you to configure.
3. Click the arrow in the top right corner of the gadget to open the configuration menu and click '**Edit**'. Configure the Bamboo information to be displayed on your gadget as follows:
    - **'Select Plan'** — Select the Bamboo plan for which you would like to show a summary.
    - **'Select Chart Type'** — Select the chart which you would like displayed for the plan, i.e. 'Success Rate & Duration' by desired interval *(group by time period)* or 'Duration and Failed Tests' by build number *(group by build)*.
    - **'Show Builds From'** — Select how many days worth of builds you would like to include.
    - **'Refresh Interval'** — Select how often you would like the information on the gadget to update.
4. Click the **'Save'** button.

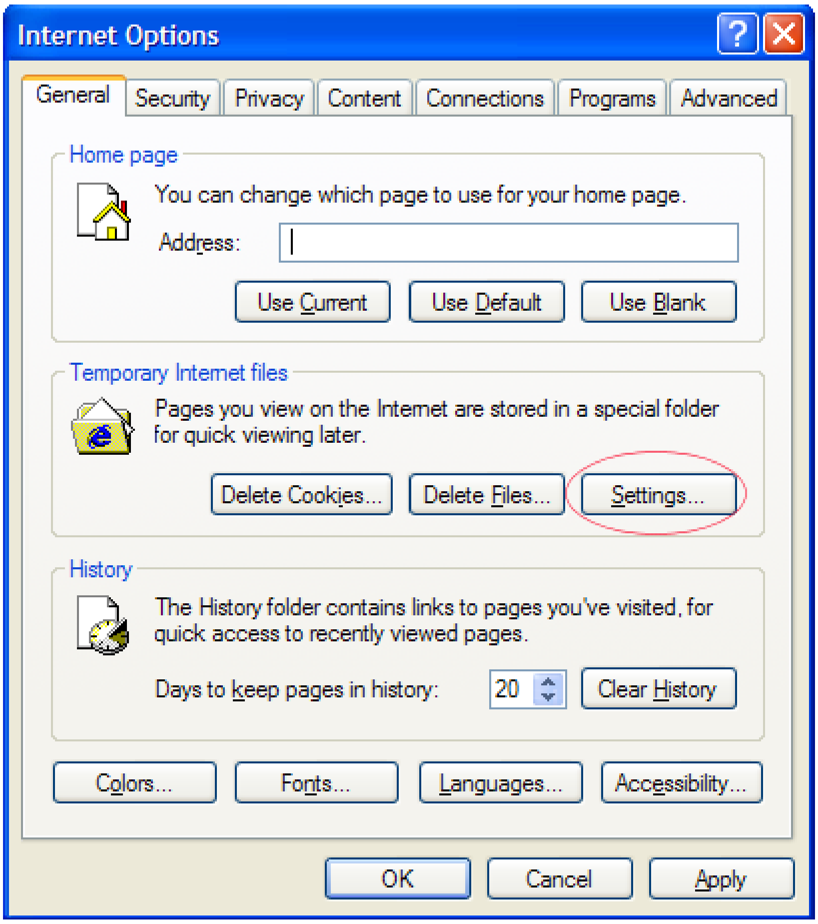
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Configuring your Internet Explorer cache settings

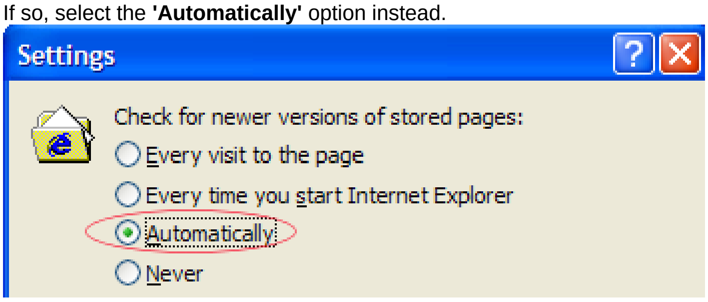
If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

1. Select **'Internet Options'** from the **'Tools'** menu:


2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Authorising JIRA to Display Bamboo Gadgets
When you add this gadget to your JIRA dashboard, you may see a message similar to this:

> *The website (container) you have placed this gadget on is unauthorised. Please contact your system administator to have it approved.*

To fix this problem, you will need to configure your Bamboo site to allow JIRA to draw information from it via gadgets on the JIRA dashboard. To do this, your JIRA administrator first needs to define your JIRA site as an OAuth consumer in Bamboo. You will then be required to perform a once-off authentication before your gadget will display correctly.

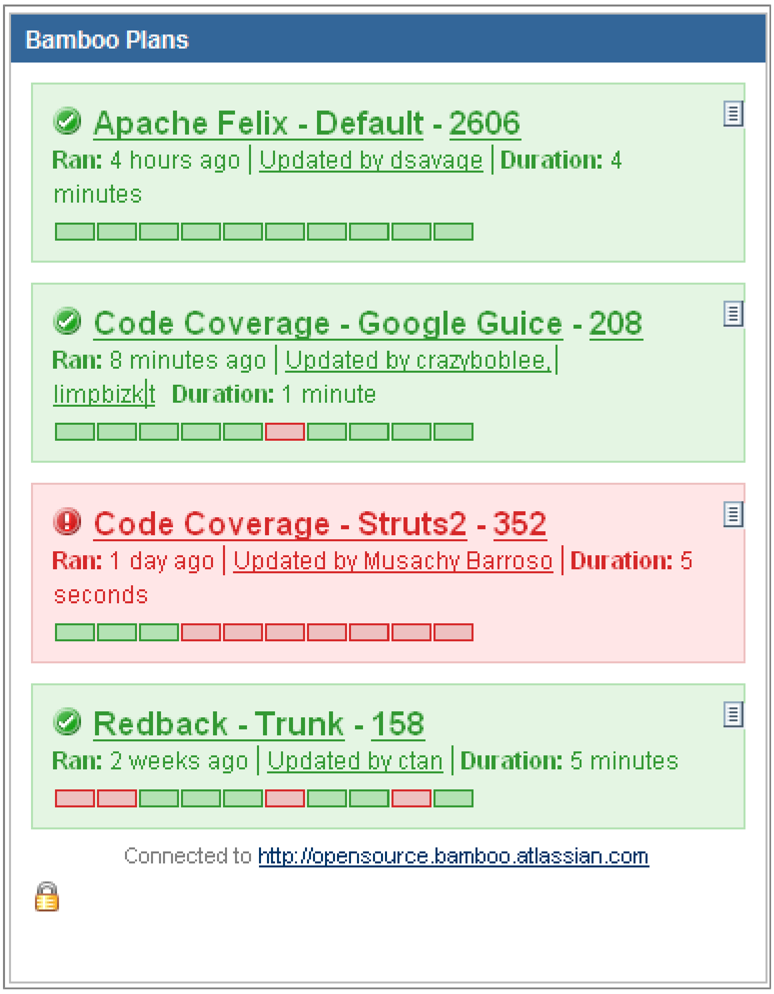
Adding the Bamboo Plans Gadget

The **Bamboo Plans** gadget displays a list of all plans on a particular Bamboo server and each plan's current status.

What does it look like?

The **Bamboo Plans** gadget should appear as follows on the dashboard:

Screenshot: 'Bamboo Plans' gadget



The Bamboo Plans gadget will only be available to add to your dashboard if your JIRA administrator has configured the Bamboo plugin on your JIRA server. Also, if you have added multiple Bamboo servers in JIRA there will be one Bamboo Status gadget available per server, e.g. 'Bamboo Plans Gadget from http://172.20.5.83:8085', 'Bamboo Plans Gadget from http://172.19.6.93:8085', etc.

Adding the 'Bamboo Plans ' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Bamboo Plans**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory. The 'Bamboo Plans' gadget will appear on your dashboard as follows, ready for you to configure.
3. Click the arrow in the top right corner of the gadget to open the configuration menu and click '**Edit**'. Configure the Bamboo information to be displayed on your gadget as follows:
   - **'Select Plans'** — Select the Bamboo plan which you would displayed on your gadget.
   - **'Refresh Interval'** — Select how often you would like the information on the gadget to update.
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Authorising JIRA to Display Bamboo Gadgets
When you add this gadget to your JIRA dashboard, you may see a message similar to this:

> *The website (container) you have placed this gadget on is unauthorised. Please contact your system administator to have it approved.*

To fix this problem, you will need to configure your Bamboo site to allow JIRA to draw information from it via gadgets on the JIRA dashboard. To do this, your JIRA administrator first needs to define your JIRA site as an OAuth consumer in Bamboo. You will then be required to perform a once-off authentication before your gadget will display correctly.

Adding the Bugzilla ID Search Gadget

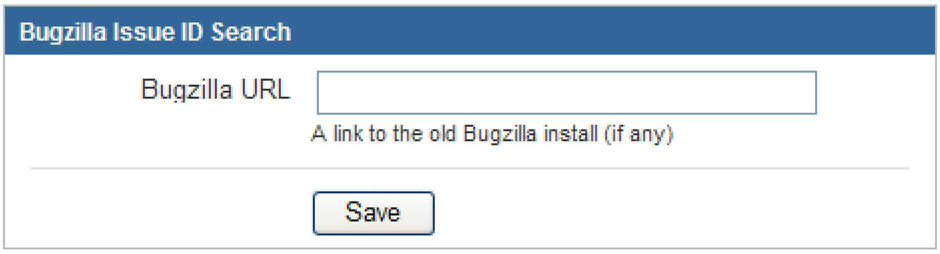
The **Bugzilla Issue ID Search** gadget allows you to search all JIRA issues for references to Bugzilla issue IDs. If the specified ID is not found within JIRA, the gadget redirects to the Bugzilla issue (if a Bugzilla server URL has been specified). This allows JIRA to become the one interface for all JIRA and Bugzilla issues.

What does it look like?

The **Bugzilla Issue ID Search** gadget should appear as follows on the dashboard:

Adding the 'Bugzilla Issue ID Search' gadget to Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Bugzilla Issue ID Search**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The 'Bugzilla Issue ID Search' gadget will appear on your dashboard as follows, ready for you to configure:



4. Optionally enter the URL of the Bugzilla server you wish to search.
5. Click the **'Save'** button.

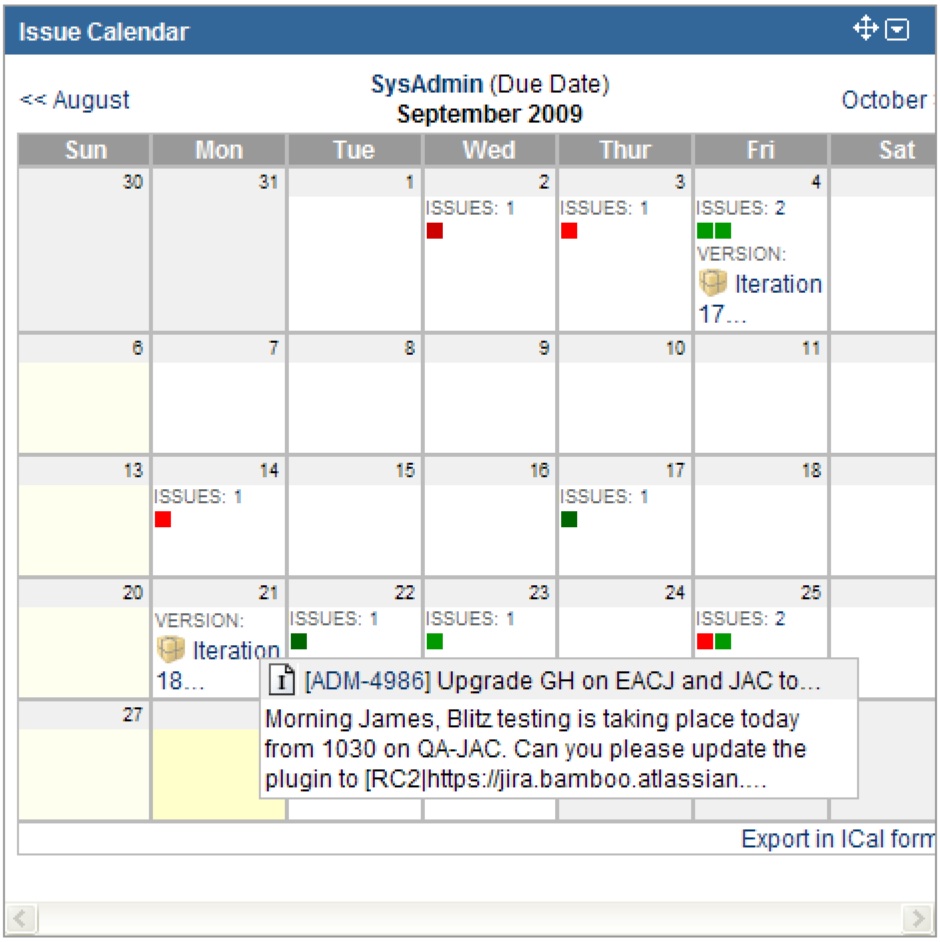
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Calendar Gadget

The **Issue Calendar** gadget shows issues and versions in a calendar format based on their due date. Calendars can be based on an issue filter or on a project.

What does it look like?

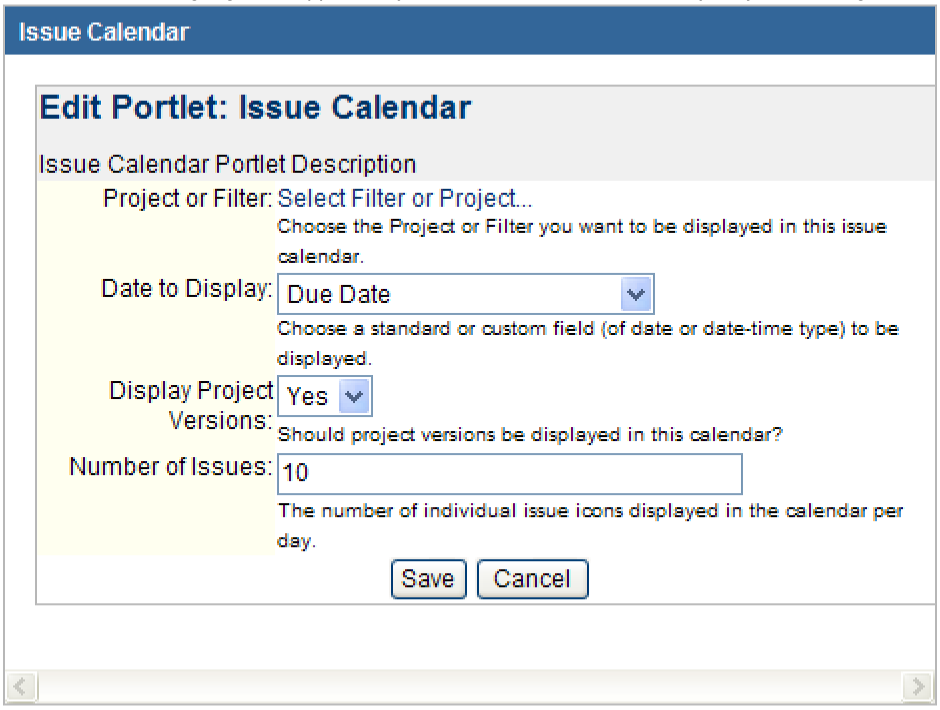
The **Issue Calendar** gadget should appear as follows on the dashboard:



The Issue Calendar gadget will only be available to add to your dashboard if your JIRA administrator has installed the Calendar plugin.

Adding the 'Calendar' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Issue Calendar**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Issue Calendar gadget will appear on your dashboard as follows, ready for you to configure:



a. '**Project or Filter**' — click the 'Select' link to choose the project or filter on whose issues the calendar will be based.
b. '**Date to Display**' — select the date field (e.g. Due Date; Created Date; Updated Date) on which the calendar will be based.
c. '**Display Project Versions**' — select whether the calendar will display the **Release Date** of each Project Version.
d. '**Number of Issues**' — select the maximum number of issues to be displayed on the calendar for any one day.

4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

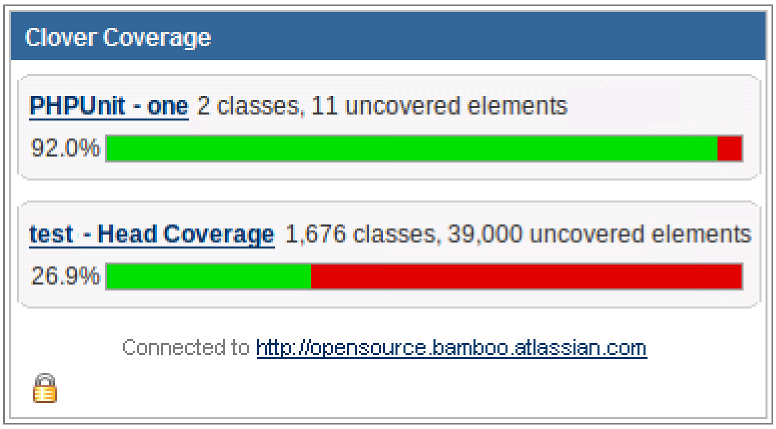
Adding the Clover Coverage Gadget

The **Clover Coverage** gadget displays the Clover coverage of plans from a particular Bamboo server.

What does it look like?

The **Clover Coverage** gadget should appear as follows on the dashboard:

Screenshot: 'Clover Coverage' gadget



The Clover Coverage gadget will only be available to add to your dashboard if your JIRA administrator has configured the Bamboo plugin on your JIRA server (the Clover gadget is exposed via the Bamboo plugin). Also, if you have added multiple Bamboo servers in JIRA there will be one Clover Coverage gadget available per server, e.g. 'Clover Coverage Gadget from http://172.20.5.83:8085', 'Clover Coverage Gadget from http://172.19.6.93:8085', etc.

Adding the 'Clover Coverage' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Clover Coverage**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory. The 'Clover Coverage' gadget will appear on your dashboard as follows, ready for you to configure.
3. Click the arrow in the top right corner of the gadget to open the configuration menu and click '**Edit**'. Configure the information to be displayed on your gadget as follows:
   - **'Select Plans'** — Select the Bamboo plans for which you would like code coverage information displayed on your gadget.
   - **'Refresh Interval'** — Select how often you would like the information on the gadget to update.
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Authorising JIRA to Display Bamboo Gadgets
When you add this gadget to your JIRA dashboard, you may see a message similar to this:

> *The website (container) you have placed this gadget on is unauthorised. Please contact your system administator to have it approved.*

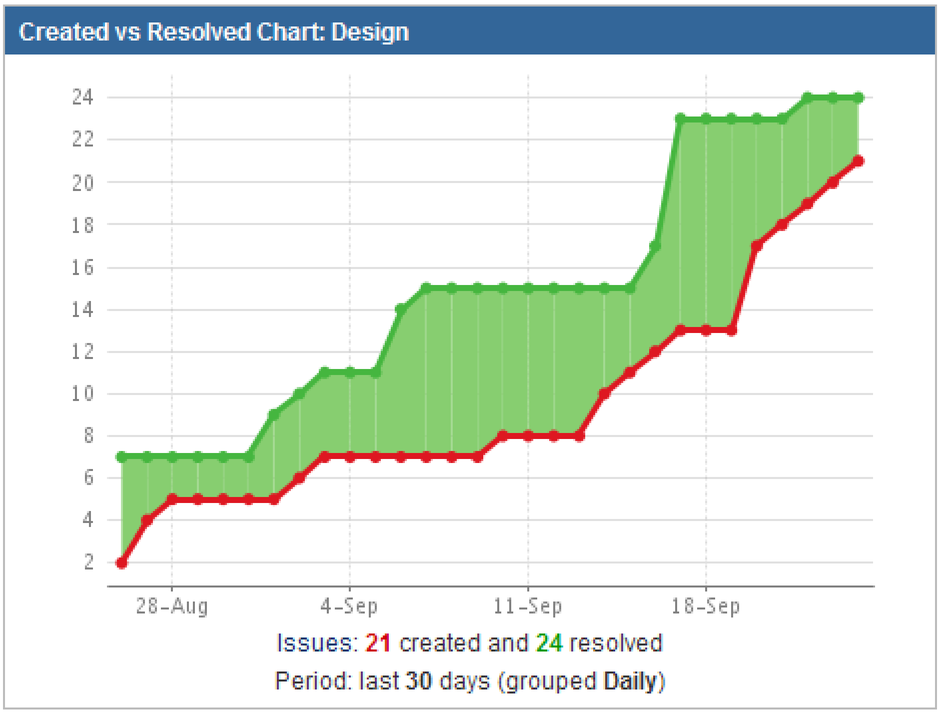
To fix this problem, you will need to configure your Bamboo site to allow JIRA to draw information from it via gadgets on the JIRA dashboard. To do this, your JIRA administrator first needs to define your JIRA site as an OAuth consumer in Bamboo. You will then be required to perform a once-off authentication before your gadget will display correctly.

Adding the Created vs Resolved Gadget

The **'Created vs Resolved'** gadget displays a difference chart showing the number of issues created vs number of issues resolved over a given period of time. The chart is based on your choice of project or issue filter, and the chart can either be cumulative or not.

What does it look like?

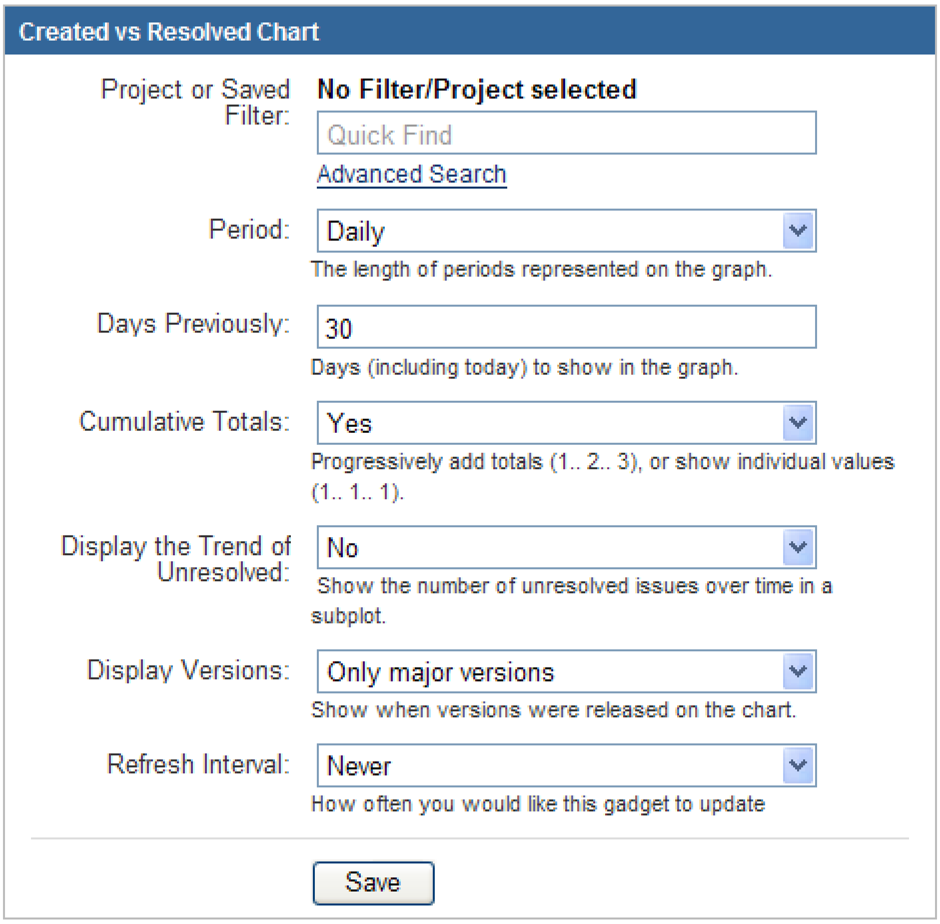
The **'Created vs Resolved'** gadget will appear as follows on the dashboard:



A report showing this information is also available.

Adding the 'Created vs Resolved Issues' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Created vs Resolved**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The 'Created vs Resolved' gadget will appear on your dashboard as follows, ready for you to configure:



a. '**Project or Saved Filter**' — start typing the name of the project (or saved filter) on whose issues the chart will be based. Alternatively, if you're unsure of the name of the project or filter you're looking for, click 'Advanced Search' to search for a project (or saved filter) whose name contains particular text; or a saved filter that was created by a particular user and/or is shared with particular users.
b. **'Period'** — select the timeframe on which the chart will be based:
   - **'Hourly'**
   - **'Daily'**
   - **'Weekly'**
   - **'Quarterly'**
   - **'Yearly'**
c. **'Days Previously'** — enter the number of days' worth of data (counting backwards from today) to be included in the chart.
d. **'Cumulative Totals?'** — choose either:
   - **'Yes'** to progressively add data to the preceding column; or
   - **'No'** to show just a single value in each column.
e. **'Display the Trend of Unresolved?'** — choose either:
   - **'Yes'** to display an additional line graph showing the number of unresolved issues over time; or
   - **'No'** to show just the difference chart of issues created vs issues resolved.
f. **'Display Versions?'** — choose either:
   - **'All versions'** to show version release dates on the chart, for all released versions; or
   - **'Only major versions'** to show version release dates on the chart, for released versions that are named 'x.x' only; or
   - **'None'** to not show version release dates on the chart.
g. '**Refresh Interval**' — select how often you want the gadget to update the chart (never / every 15 minutes / every 30 minutes / every hour / every two hours).

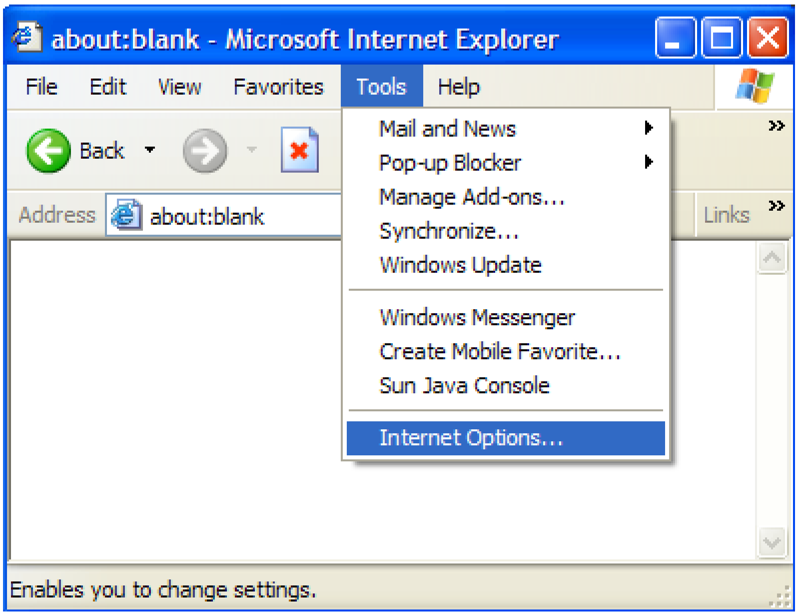
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

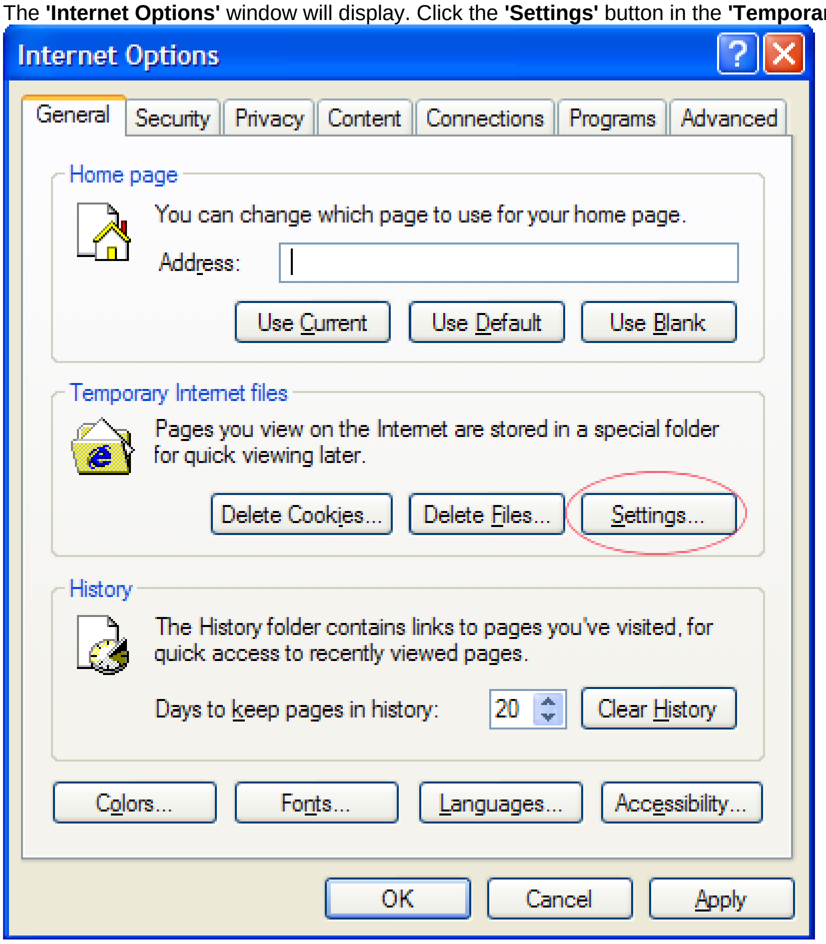
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

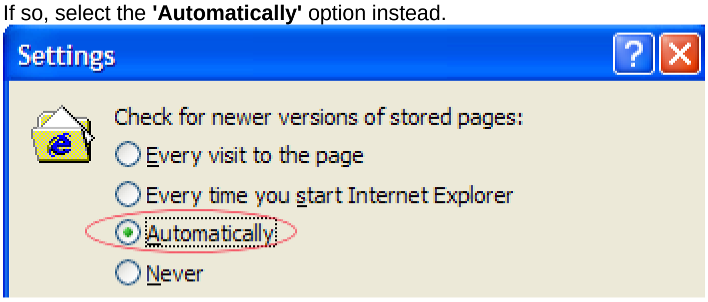
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.

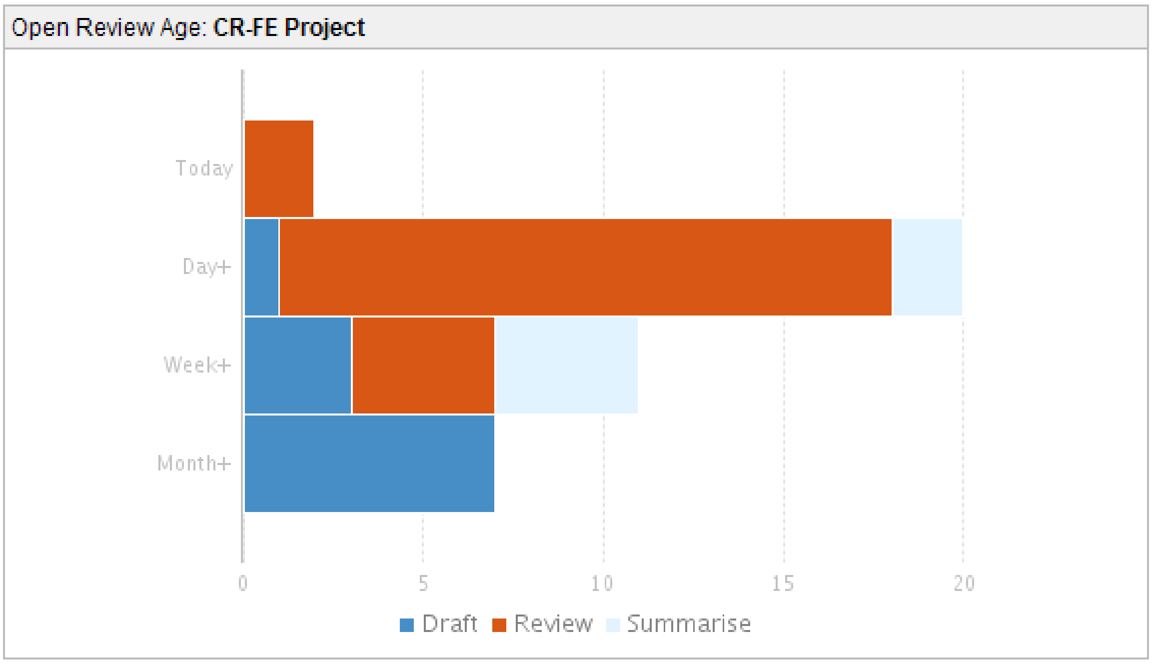


Adding the Crucible Charts Gadget

The **Crucible Charts** gadget displays various charts showing statistical summaries of your code reviews.

What does it look like?

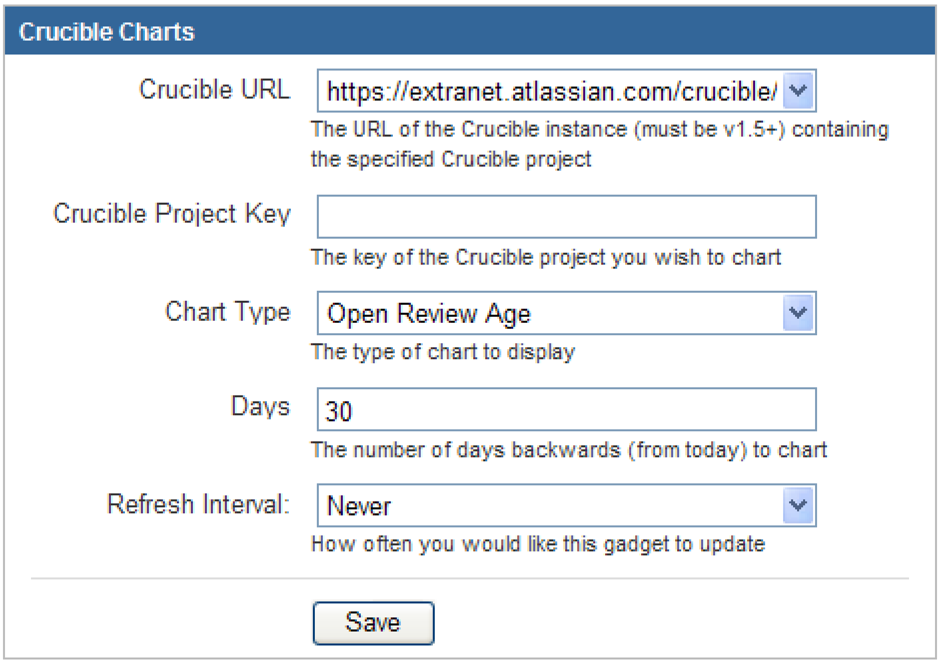
The **Crucible Charts** gadget should appear as follows on the dashboard:



The Crucible Charts gadget will only be available to add to your dashboard if your JIRA administrator has configured the FishEye plugin on your JIRA server.

Adding the 'Crucible Charts' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Crucible Charts**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The '**Crucible Charts**' gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Crucible URL**' — type the URL of your Crucible server.
   b. '**Crucible Project Key**' — type the project key of the Crucible project in which you are interested.
   c. '**Chart Type**' — select from the following:
      - '**Open Review Age**' — the age of open reviews, broken down by status.
      - '**Defect Classification**' — the number of defects raised, broken down by classification.
      - '**Open Review Volume**' — the volume of open reviews over the specified time period.

- '**Comment Volume**' — the volume of comments authored over the specified time period.
- '**Defect Rank**' — the number of defects raised, broken down by rank.

d. '**Number of Days**' — type the number of days' worth of data (backwards from today) that you want the gadget to display.
e. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).

4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

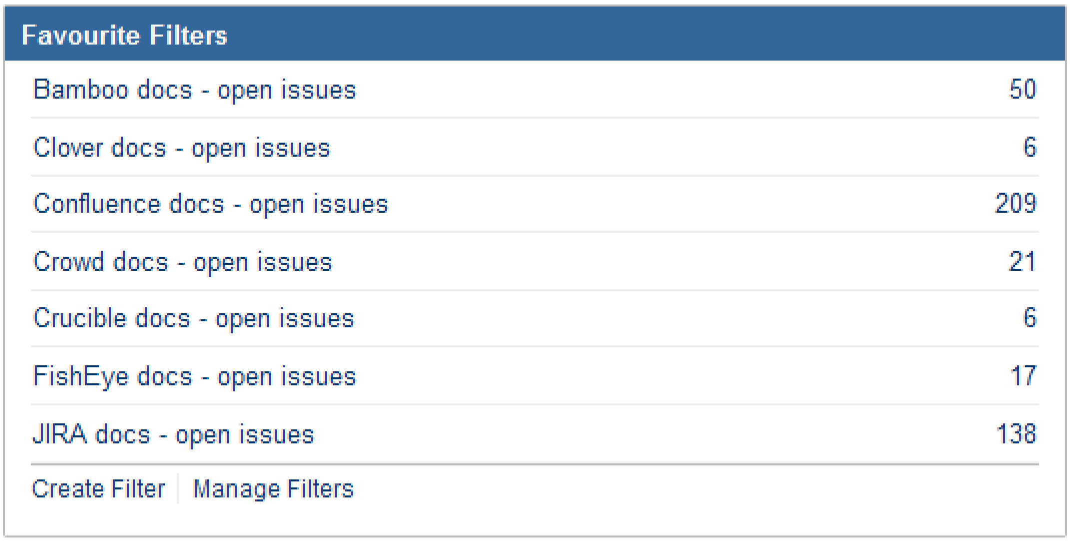
Adding the Favourite Filters Gadget

The **Favourite Filters** gadget displays a list of all the issue filters that have currently been added by you as a 'favourite' filter.

Read more about adding an issue filter as a favourite filter in the issue filters documentation.

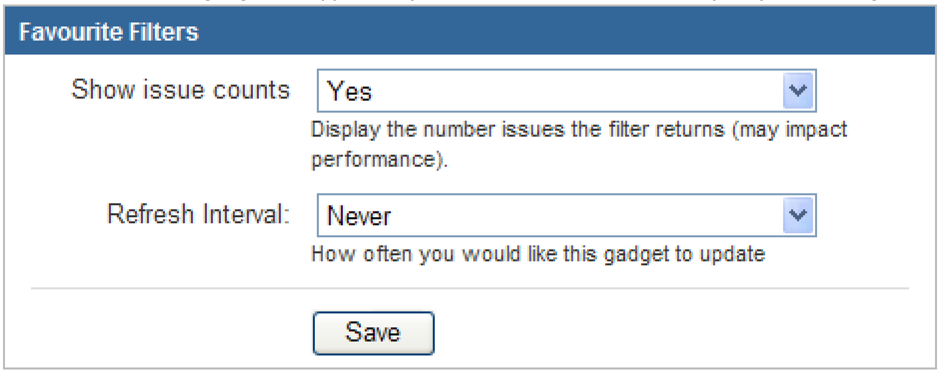
What does it look like?

The **Favourite Filters** gadget should appear as follows on the dashboard:



Adding the 'Favourite Filters' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Favourite Filters**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Favourite Filters gadget will appear on your dashboard as follows, ready for you to configure:



a. '**Show issue counts**' — select whether, for each of your favourite filters, you wish to display the number of issues that match the filter. Note that choosing '**Yes**' may impact your dashboard's performance.
b. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).

4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

> The Favourite Filters gadget is added by default to the 'System Default' dashboard.

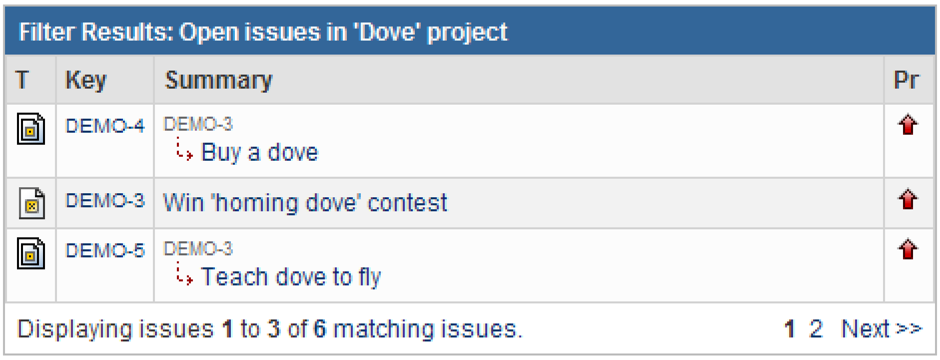
The '**Favourite Filters**' gadget has replaced the '**List All Filters**' portlet.

Adding the Filter Results Gadget

The **Filter Results** gadget displays the results of a specified issue filter on the dashboard. It can be configured to display a maximum number of issues from the collection returned from the specified filter.

What does it look like?

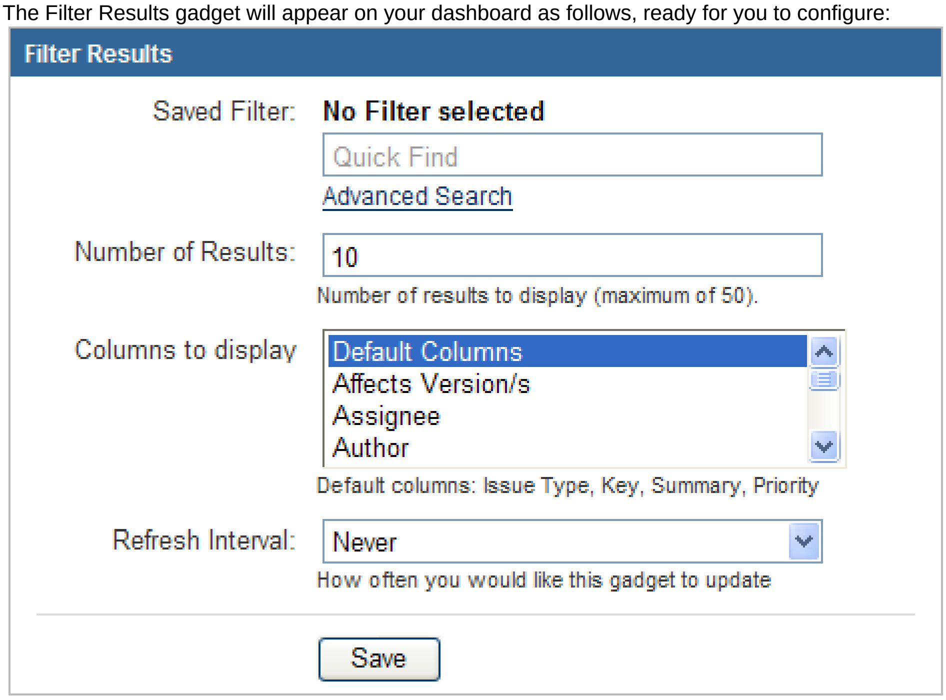
The **'Filter Results'** gadget should appear as follows on the dashboard:



You may also be interested in the Two-Dimensional Filter Statistics Gadget

Adding the 'Filter Results' Gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Filter Results**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Filter Results gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Saved Filter**' — start typing the name of the filter, or click the '**Advanced Search**' link to search for a filter/select one of your favourite filters/select a filter that you have created.
   b. '**Number of Results**' — type the maximum number of issues that you want the gadget to display per page.
   c. '**Columns to display**' — select the column(s) (i.e. issue fields) that you want the gadget to display, or choose '**Default Columns**' to display Issue Type, Key and Summary.
   d. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

> The "**Filter Results**" gadget has replaced the "**Saved Filter**" portlet.

Adding the FishEye Charts Gadget

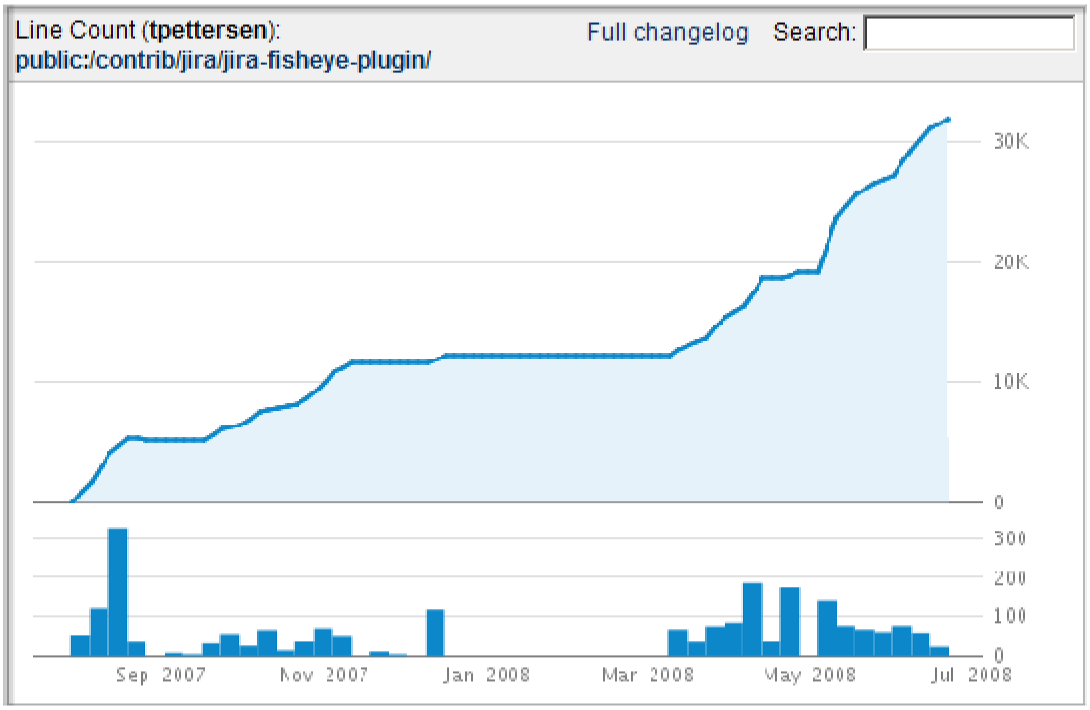
> **Authorising JIRA to Display FishEye Gadgets**
> Before you can use FishEye gadgets in JIRA, your administrator needs to add JIRA as a trusted application to FishEye so that JIRA can retrieve information from FishEye. Further instructions are available in the FishEye documentation.

The **FishEye Charts** gadget displays two charts showing statistics about your sourcecode repository:

- Lines of code
- Commit activity

What does it look like?

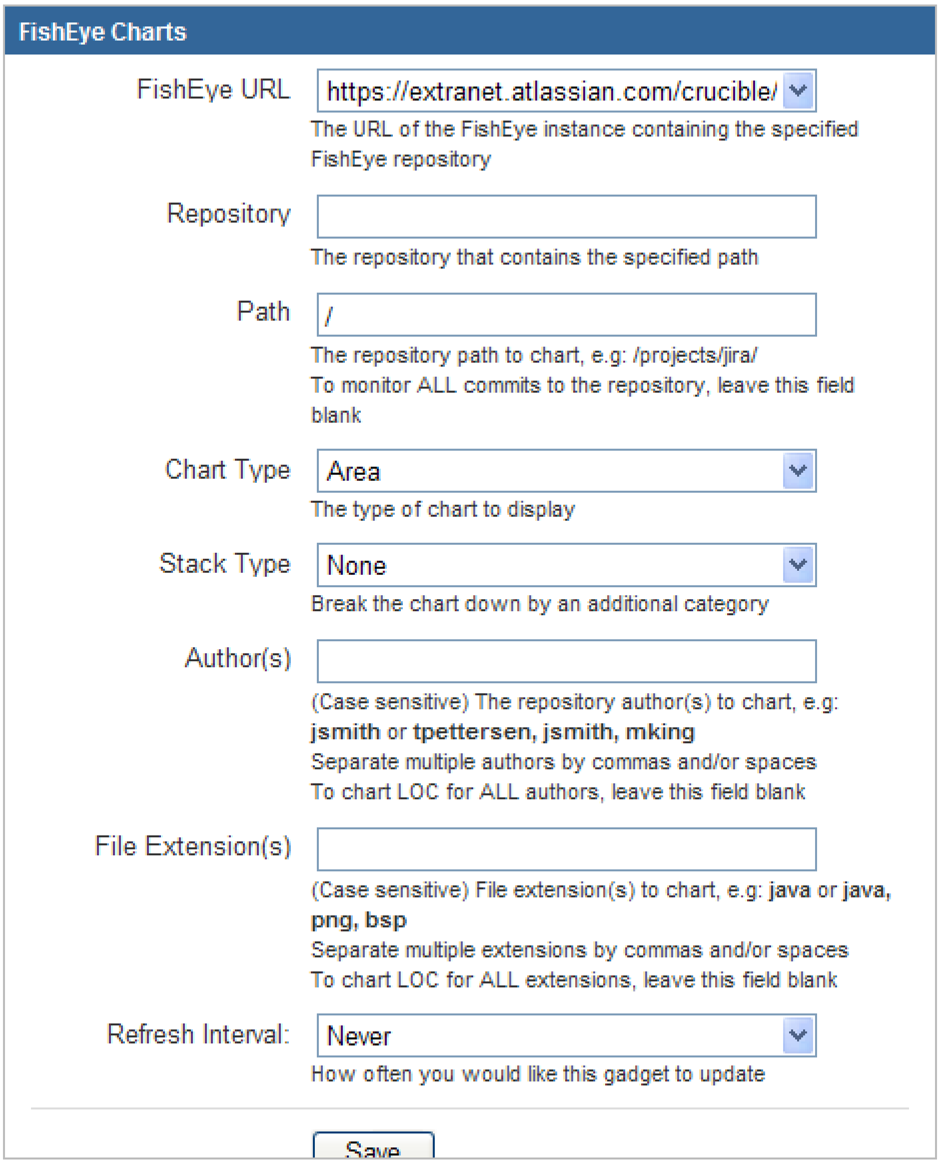
The **FishEye Charts** gadget should appear as follows on the dashboard:



> The FishEye Charts gadget will only be available to add to your dashboard if your JIRA administrator has configured the FishEye plugin on your JIRA server.

Adding the 'FishEye Charts' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**FishEye Charts**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The '**FishEye Charts**' gadget will appear on your dashboard as follows, ready for you to configure:



a. '**FishEye URL**' — type the URL of your FishEye server.
b. '**Repository**' — type the name of your FishEye repository.
c. '**Path**' — optionally type the path within your repository that contains the directory in which you are interested. Leave blank to include all directories in your repository.
d. '**Chart Type**' — select from the following: '**Area**', '**Change**', '**Line**' or '**Pie**'.
e. '**Stack Type**' — allows you to break the chart down by **Subdirectory**, **File Extension** and **Author**. For example, in a pie chart with an *author* stacktype, each slice would represent the LOC (lines of code) of a different author.
f. '**Author(s)**' — optionally type the repository login name of the author(s) in whose code you are interested. Leave blank to include all authors.
g. '**File Extension(s)**' — optionally type the file extensions(s) in which you are interested. Leave blank to include all file types.
h. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).

4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

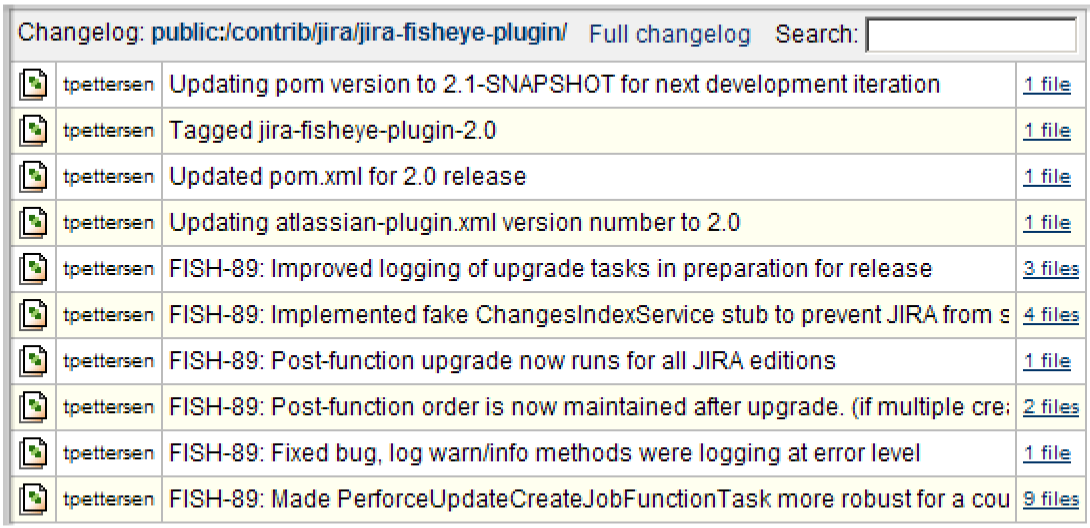
Adding the FishEye Recent Changesets Gadget

Authorising JIRA to Display FishEye Gadgets
Before you can use FishEye gadgets in JIRA, your administrator needs to add JIRA as a trusted application to FishEye so that JIRA can retrieve information from FishEye. Further instructions are available in the FishEye documentation.

The **FishEye Recent Changesets** gadget displays a number of recent changesets from a FishEye repository.

What does it look like?

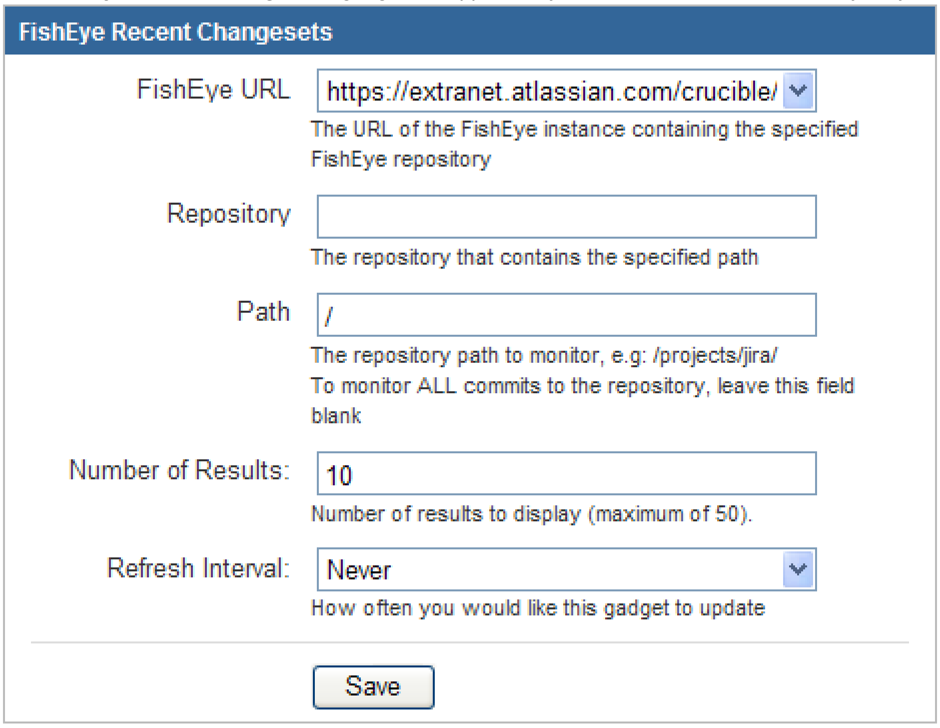
The **FishEye Recent Changesets** gadget should appear as follows on the dashboard:



The FishEye Recent Changesets gadget will only be available to add to your dashboard if your JIRA administrator has configured the FishEye plugin on your JIRA server.

Adding the 'FishEye Recent Changesets' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**FishEye Recent Changesets**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The '**FishEye Recent Changesets**' gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**FishEye URL**' — type the URL of your FishEye server.
   b. '**Repository**' — type the name of your FishEye repository.
   c. '**Path**' — optionally type the path within your repository that contains the directory in which you are interested. Leave blank to include all directories in your repository.
   d. '**Number of Results**' — type the number of commits that you want the gadget to display.
   e. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

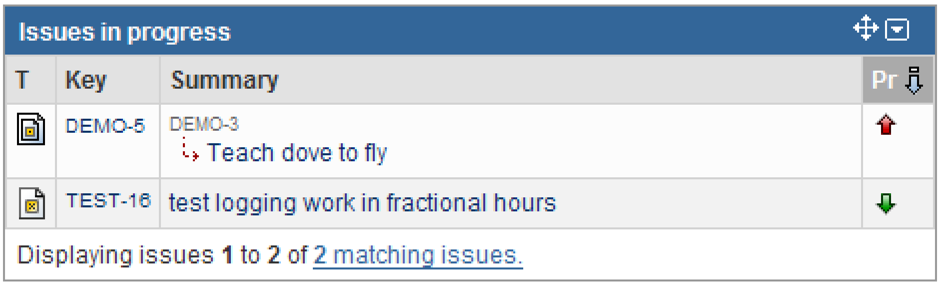
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the In Progress Gadget

The **Issues in Progress** gadget displays all issues that are currently in progress and assigned to you.

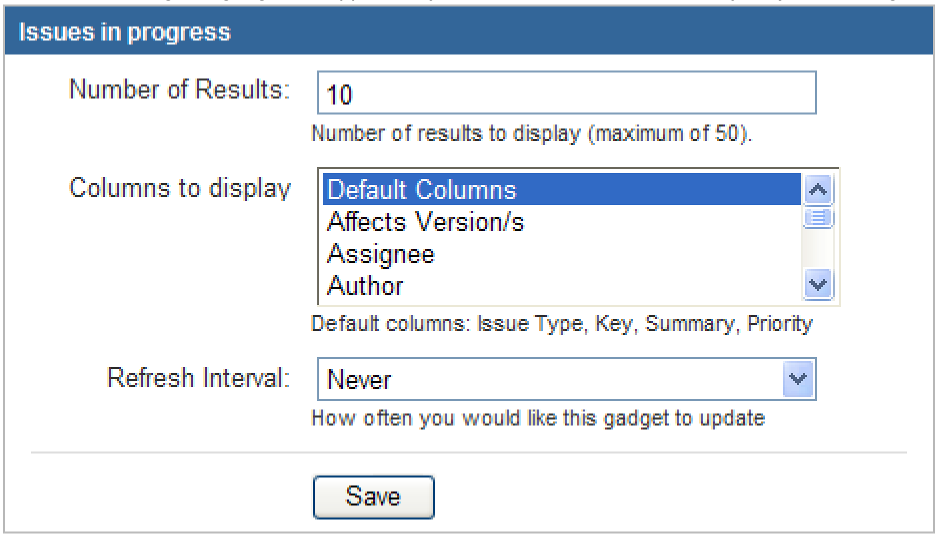
What does it look like?

The **Issues in Progress** gadget should appear as follows on the dashboard:



Adding the 'Issues in Progress' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Issues in Progress**' gadget and click the '**Add it Now**' button. Then click the ' **Finished**' button at the bottom of the Gadget Directory.
3. The Issues in Progress gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Number of Results**' — type the maximum number of issues that you want the gadget to display per page.
   b. '**Columns to display**' — select the column(s) that you want the gadget to display, or choose '**Default Columns**' to display Issue Type, Key and Summary.
   c. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

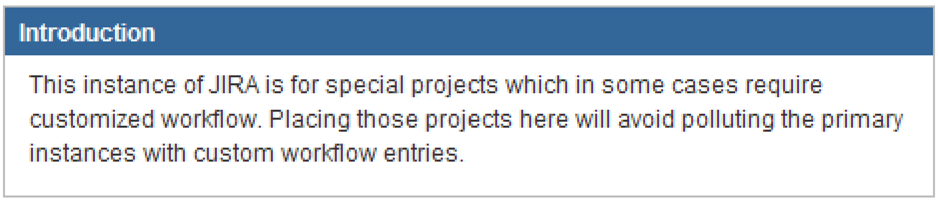
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Introduction Gadget

The **Introduction** gadget displays a configurable introduction message on the dashboard.

What does it look like?

The **Introduction** gadget should appear as follows on the dashboard:



Adding the 'Introduction' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.

2. The '**Gadget Directory**' will appear. Locate the '**Introduction**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Introduction gadget will appear on your dashboard.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

> The text/html displayed in the **Introduction** gadget is configured by your JIRA administration, through the JIRA configuration page.

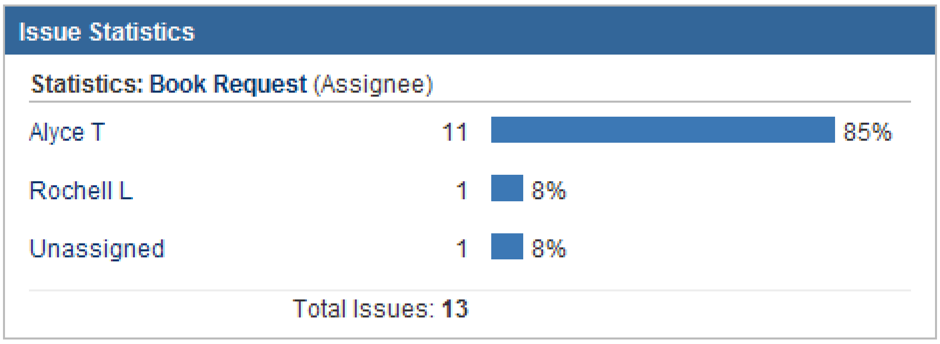
Adding the Issue Statistics Gadget

The **Issue Statistics** gadget displays the collection of issues returned from a specified project or saved filter, grouped by a specified field.

For instance, a filter can be created to return all open issues from all projects. The gadget can then be configured to display these issues broken down by a field (e.g. Assignee).

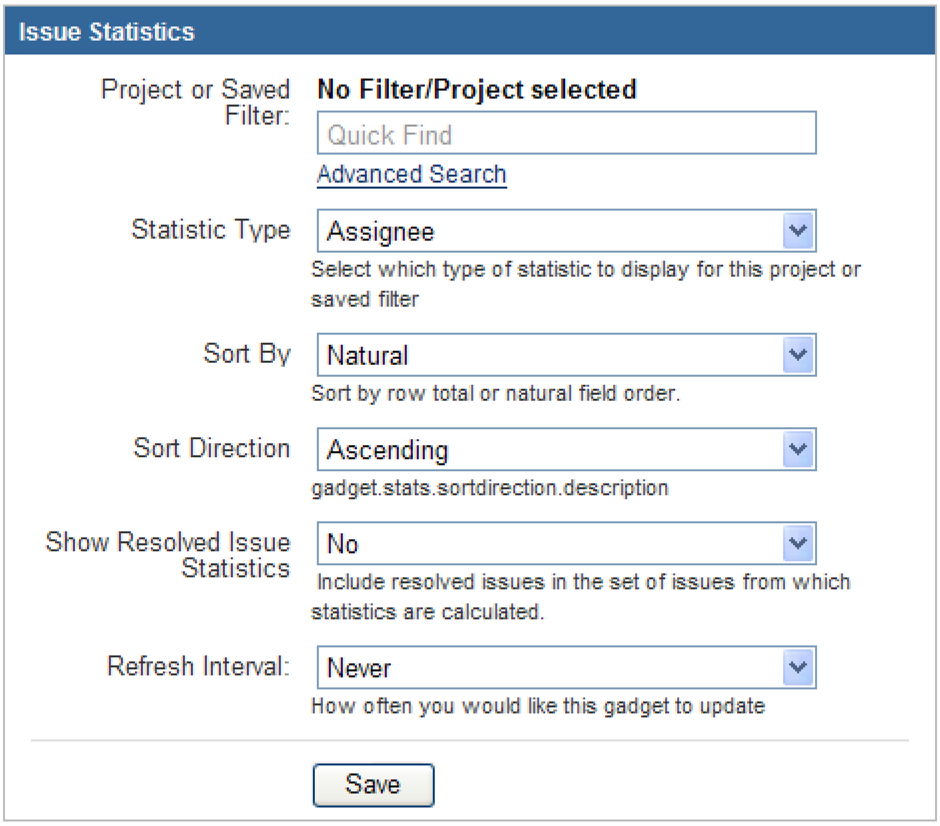
What does it look like?

The **Issue Statistics** gadget should appear as follows on the dashboard:



Adding the 'Issue Statistics' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Issue Statistics**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Issue Statistics gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Project or Saved Filter**' — start typing the name of the project or filter, or click the '**Advanced Search**' link to search for a project or filter.
   b. '**Statistic Type**' — select the field (e.g. Assignee; Created Date; Due Date; etc) on which the issues will be grouped.
   c. '**Sort By**' — select how to sort the values of your selected field:
      - '**Natural**' — this will use the field's native sorting order, e.g. for the "Assignee" field, the assignee names would be sorted alphabetically.
      - '**Total**' — this will sort by the number of issues that match each value, e.g. for the "Assignee" field, the assignee names would be sorted by the number of issues assigned to each person.
   d. '**Sort Direction**' — select whether the field values should be sorted in **Ascending** or **Descending** order.
   e. '**Show Resolved Issue Statistics**' — select whether the graph will include resolved issues (i.e. issues that have a Resolution).
   f. '**Refresh Interval**' — select how often you want the gadget to update (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

> The "**Issue Statistics**" gadget has replaced the "**Filter Statistics**" portlet.

Adding the JIRA News Gadget

The **JIRA: News** gadget displays recent Atlassian news about JIRA.

What does it look like?

The **JIRA: News** gadget should appear as follows on the dashboard:

Adding the JIRA: News gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**JIRA: News**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.

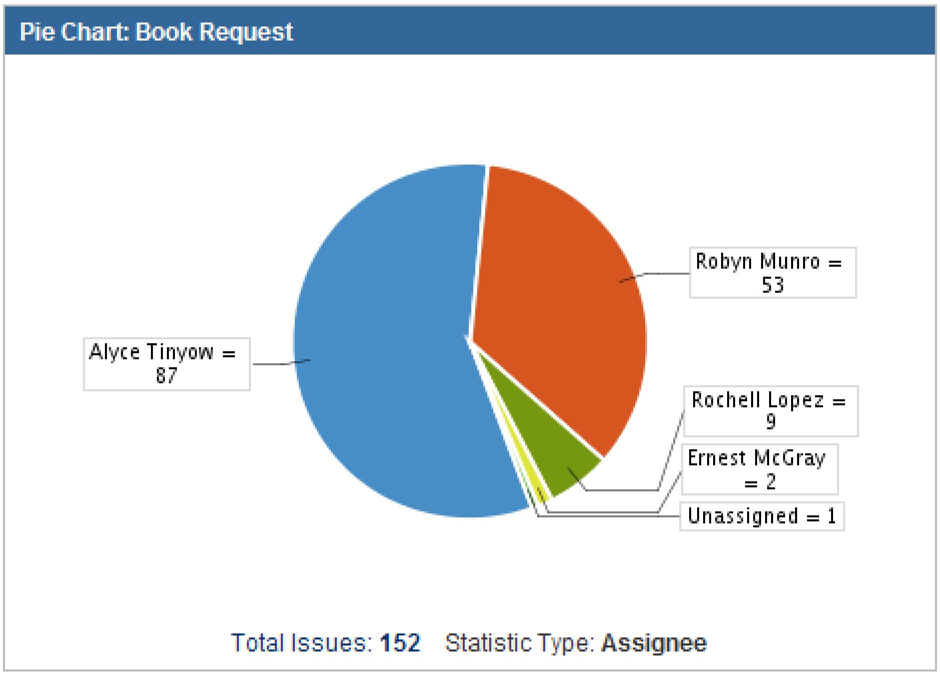
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Pie Chart Gadget

The **'Pie Chart'** gadget displays issues returned from a specified project or issue filter, grouped by a specified field. For example, an issue filter can be created to retrieve all open issues for a particular version of a particular project. The 'Pie Chart' gadget can then be used to display these issues grouped by a specified field (e.g. Assignee).

What does it look like?

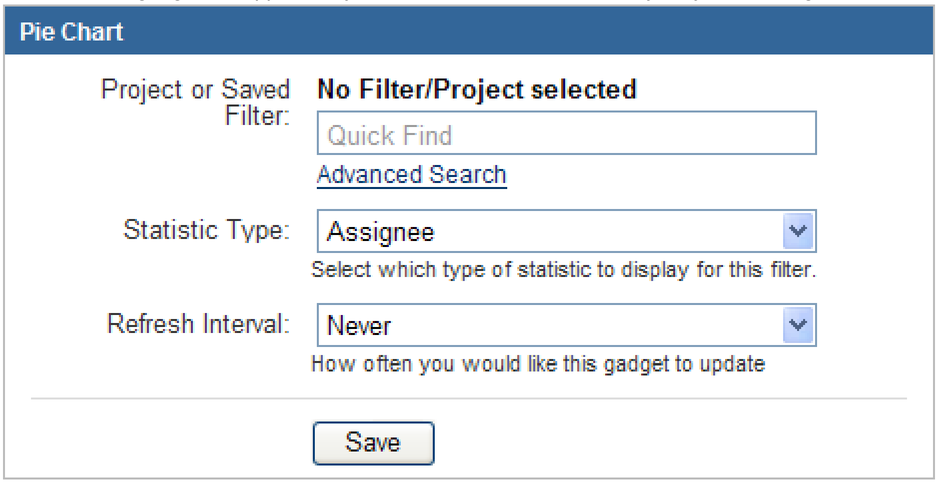
The **'Pie Chart'** gadget will appear as follows on the dashboard:



Click any section of the chart to view the matching issues.

Adding the 'Pie Chart' Gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Pie Chart**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Pie Chart gadget will appear on your dashboard as follows, ready for you to configure:



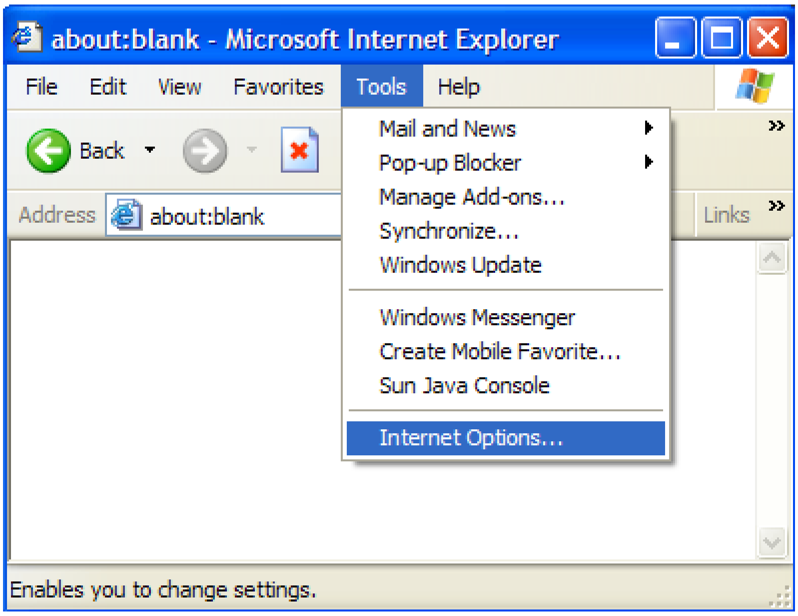
   a. '**Project or Saved Filter**' — start typing the name of the project or filter, or click the 'Advanced Search' link to search for a project or filter.
   b. '**Statistic Type**' — select the field on which the pie chart will be based.
   c. '**Refresh Interval**' — select how often you want the gadget to update the chart (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

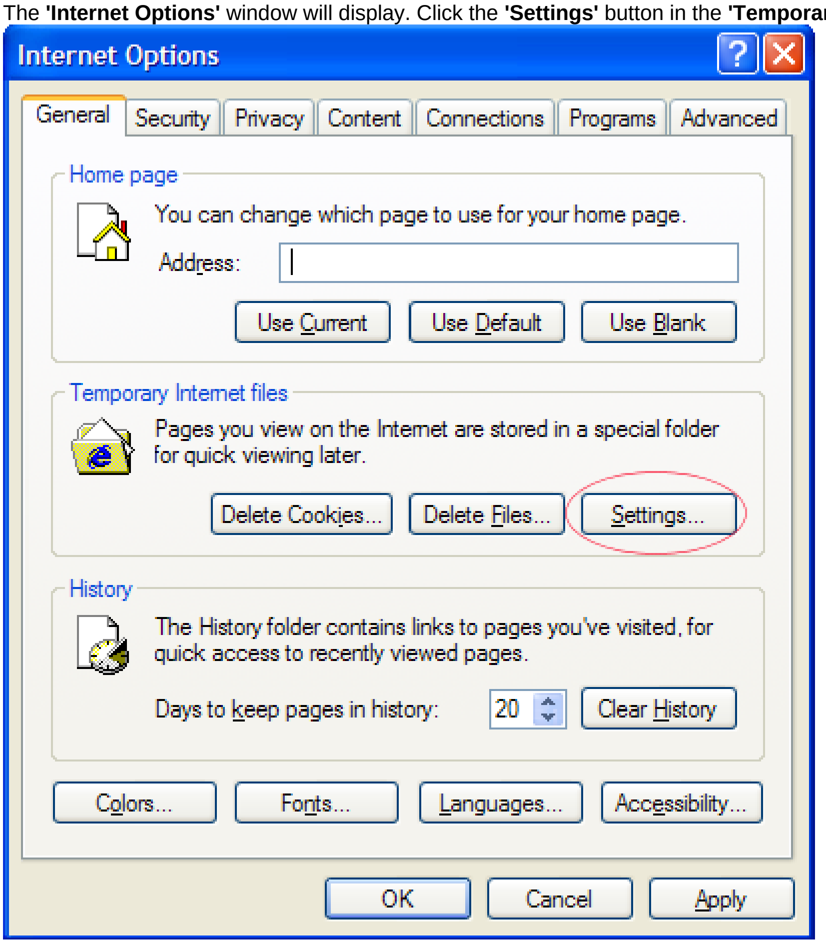
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

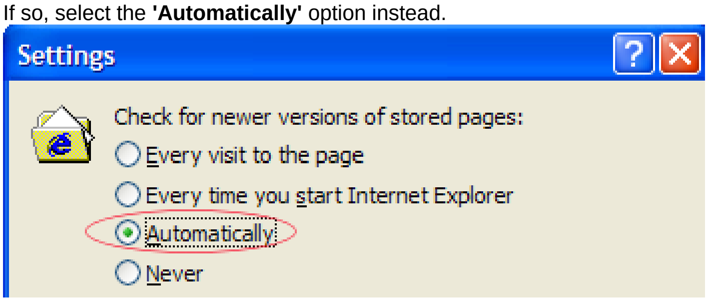
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Adding the Projects Gadget

The **Projects** gadget provides information and various filters related to specified project(s) within JIRA.

What does it look like?

The Projects gadget should appear as follows on the dashboard:

The 'menu' icon provides links to the following, for each project:

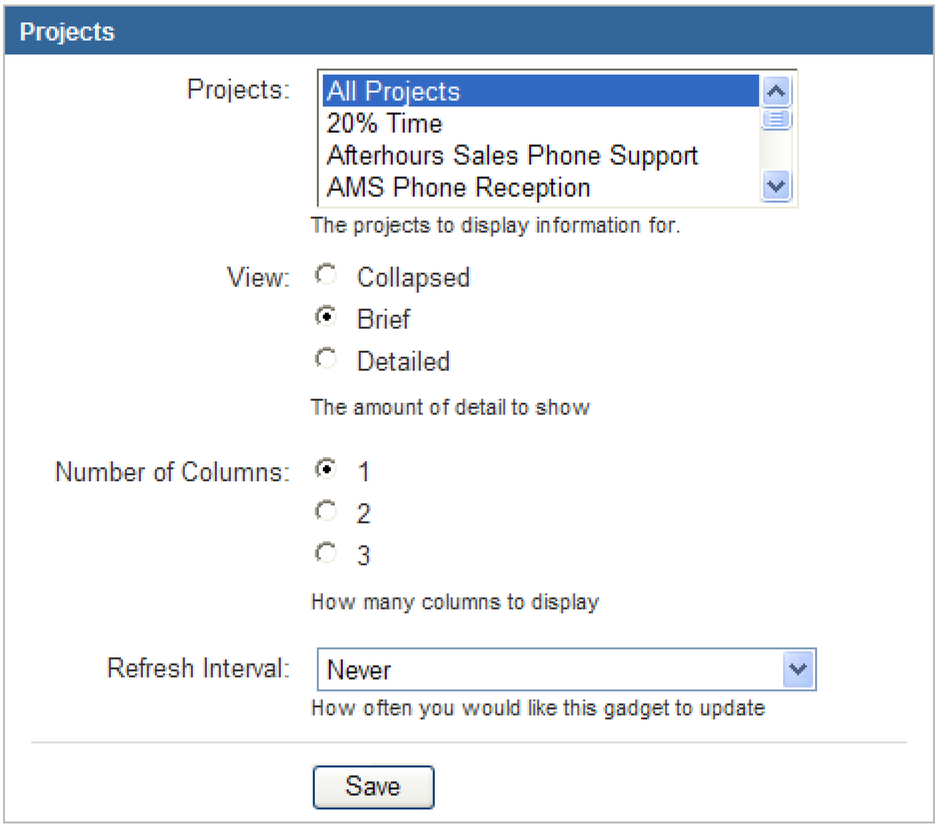
- Summary — Shows recent activity in the project, plus a list of issues that are due soon.
- Issues — Shows summaries of: all issues in a project, grouped by Status; and unresolved issues, grouped by Assignee, Priority, Version and Component.
- Road Map — Shows unresolved issues for upcoming versions of a project.
- Change Log — Shows resolved issues for previous versions of a project.
- Popular Issues — Shows a project's unresolved issues, ordered by popularity (votes).
- Versions — Shows recent versions for a given project.
- Components — Shows all components in a given project.
- Builds — Shows recent Bamboo builds for a given project.
- Source — Shows recent FishEye changesets for a given project.
- Reviews — Shows recent Crucible code for a given project.

The 'filter' icon provides links to the following issue filters in the Issue Navigator, for each project:

- All
- Resolved recently
- Outstanding
- Added recently
- Unscheduled
- Updated recently
- Assigned to me
- Most important
- Reported by me

Adding the 'Projects' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Projects**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Projects gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Projects**' — select one or more projects (or 'All Projects') to display in the gadget.
   b. '**View**' — select either '**Collapsed**', '**Brief**' or '**Detailed**' to specify how much information fo display per project.
   c. '**Number of Columns**' — select how the gadget will be formatted (1 column, 2 columns or 3 columns).
   d. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Quick Links Gadget

The **Quick Links** gadget displays a number of useful links to frequently-used searches and operations.

What does it look like?

The **Quick Links** gadget should appear as follows on the dashboard:

Adding the Quick Links gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Quick Links**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.

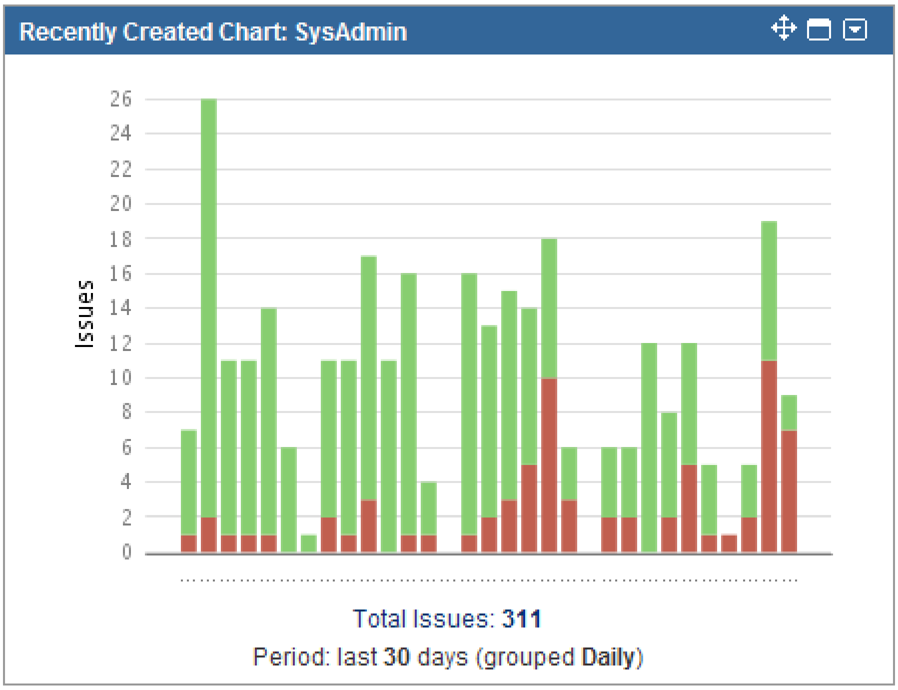
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Recently Created Issues Gadget

The **'Recently Created Issues'** gadget displays a bar chart showing the rate at which issues are being created, as well as how many of those created issues are resolved. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

What does it look like?

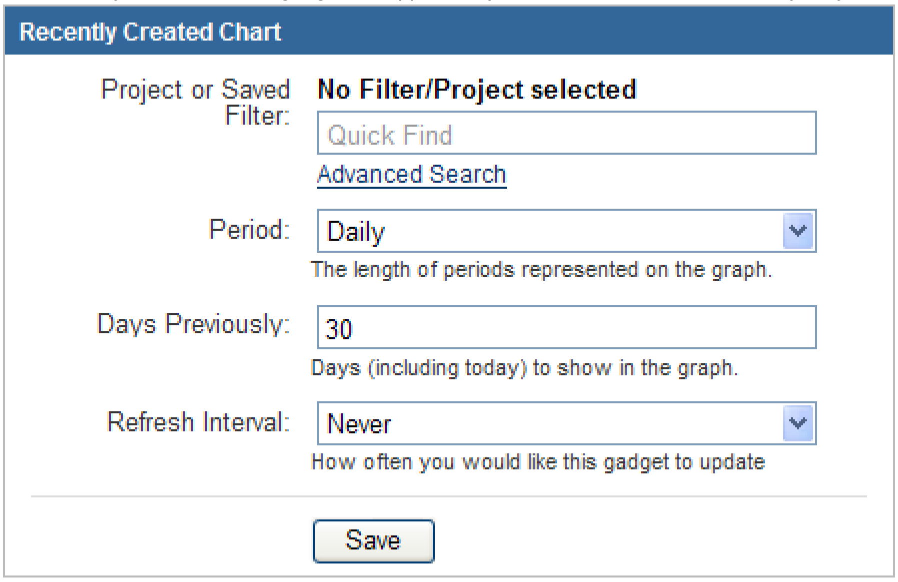
The **'Recently Created Issues'** gadget will appear as follows on the dashboard:



Click the **'more detail'** link to go to the full-size report and data table.

Adding the 'Recently Created Issues' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Recently Created Issues**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Recently Created Issues gadget will appear on your dashboard as follows, ready for you to configure:



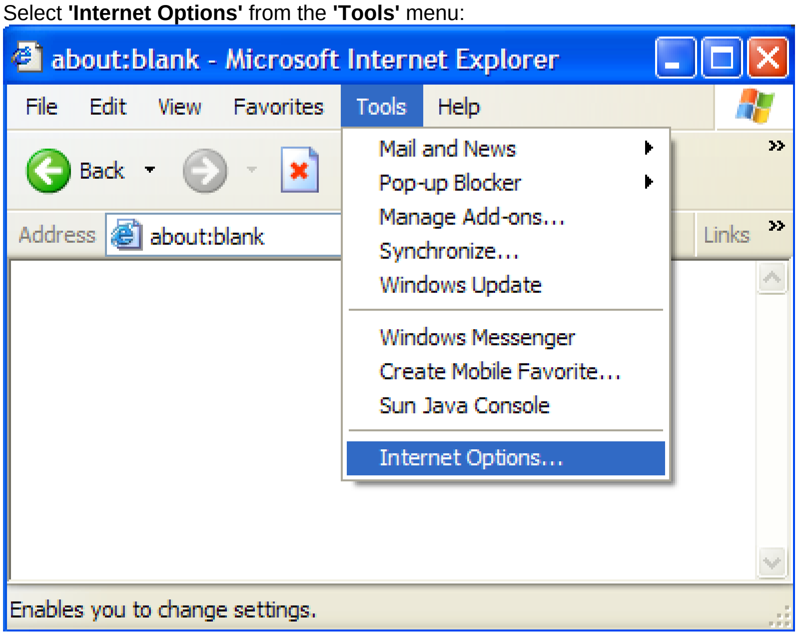
   a. '**Project or Saved Filter**' — start typing the name of the project or filter, or click the '**Advanced Search**' link to search for a project or filter.
   b. '**Title**' — type a heading for this gadget.
   c. '**Period**' — select the timeframe on which the chart will be based: **'Hourly'** / **'Daily'** / **'Weekly'** / **'Quarterly'** / **'Yearly'**
   d. '**Days Previously**' — type the number of days' worth of data (counting backwards from today) to be included in the chart.
   e. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

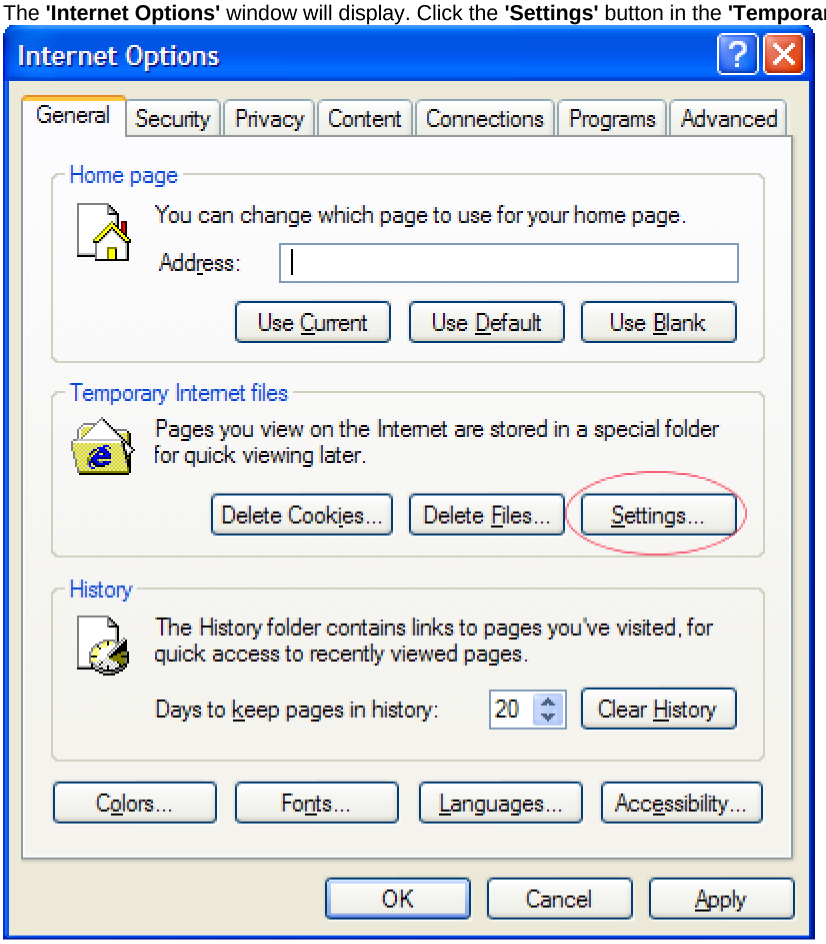
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

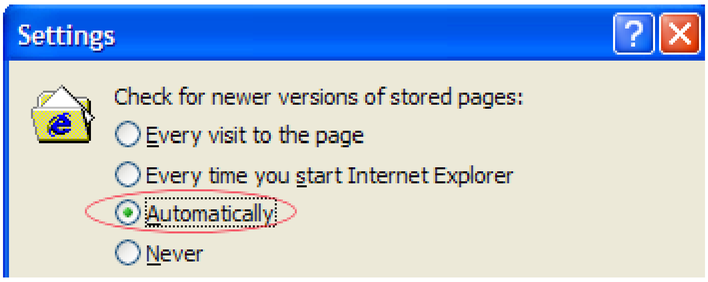
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.

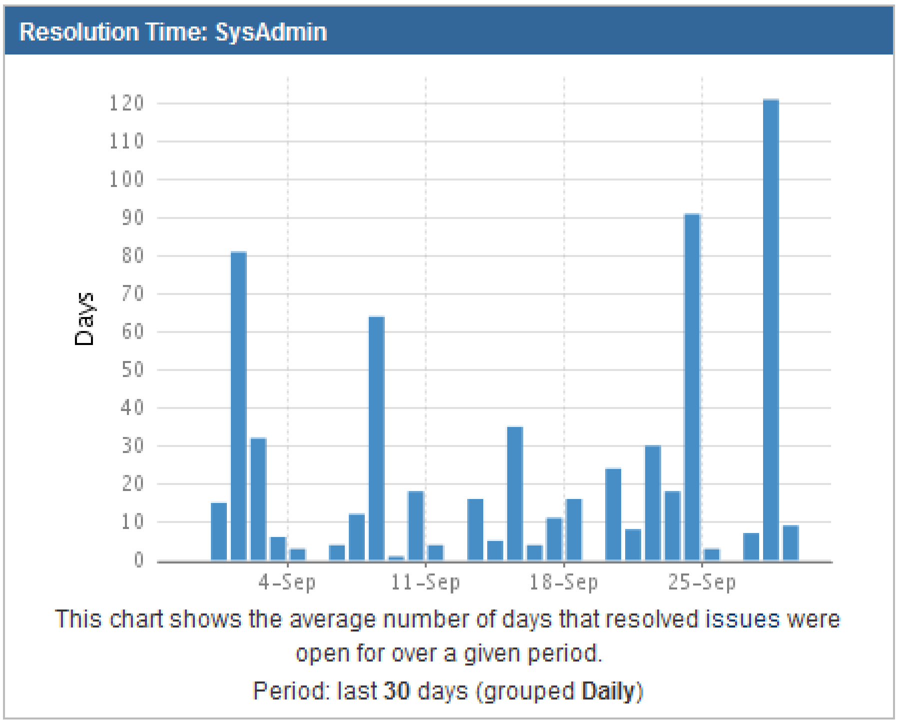


Adding the Resolution Time Gadget

The **'Resolution Time'** gadget displays a bar chart showing the average time taken to resolve issues. This is useful to show you the trends in resolution time. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

What does it look like?

The **'Resolution Time'** gadget will appear as follows on the dashboard:

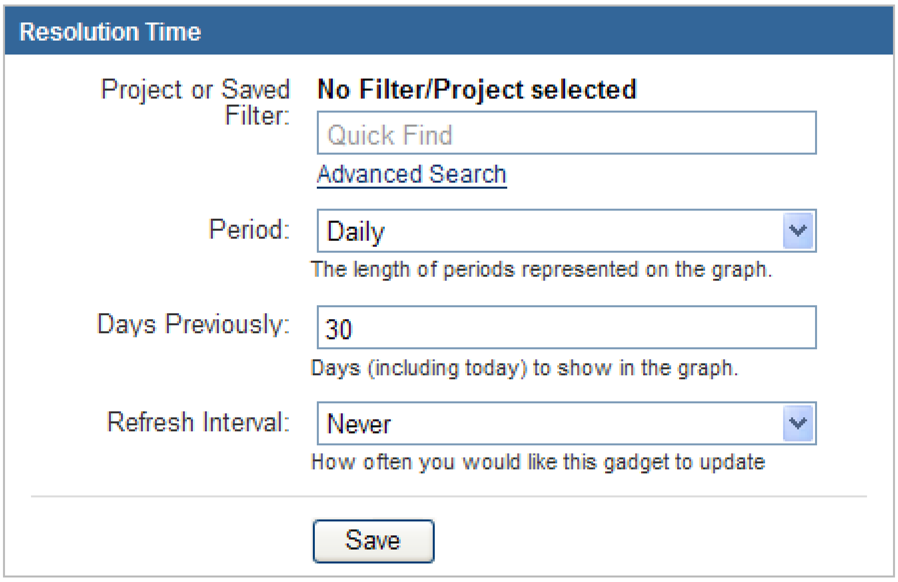


If you maximise the gadget, you can also view the data table on which the graph is based.

Adding the 'Resolution Time' Gadget to your Dashboard

To add the **'Resolution Time'** gadget to your dashboard:

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Resolution Time**' gadget and click the '**Add it Now**' button. Then click the '**Finished** ' button at the bottom of the Gadget Directory.
3. The Resolution Time gadget will appear on your dashboard as follows, ready for you to configure:



a. '**Project or Saved Filter**' — start typing the name of the project or filter, or click the '**Advanced Search**' link to search for a project or filter.
b. **'Period'** — select the timeframe on which the chart will be based: **'Hourly'** / **'Daily'** / **'Weekly'** / **'Quarterly'** / **'Yearly'**
c. **'Days Previously'** — enter the number of days' worth of data (counting backwards from today) to be included in the chart.
d. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).

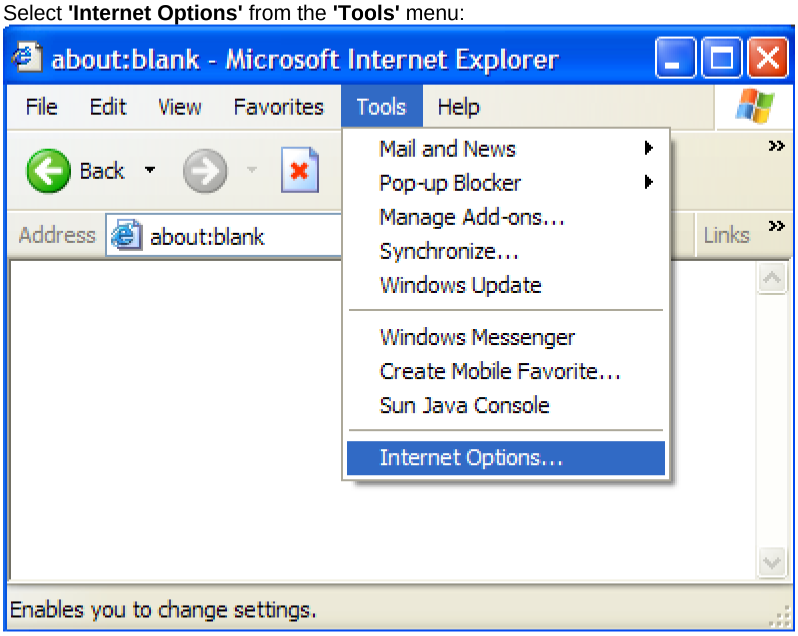
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

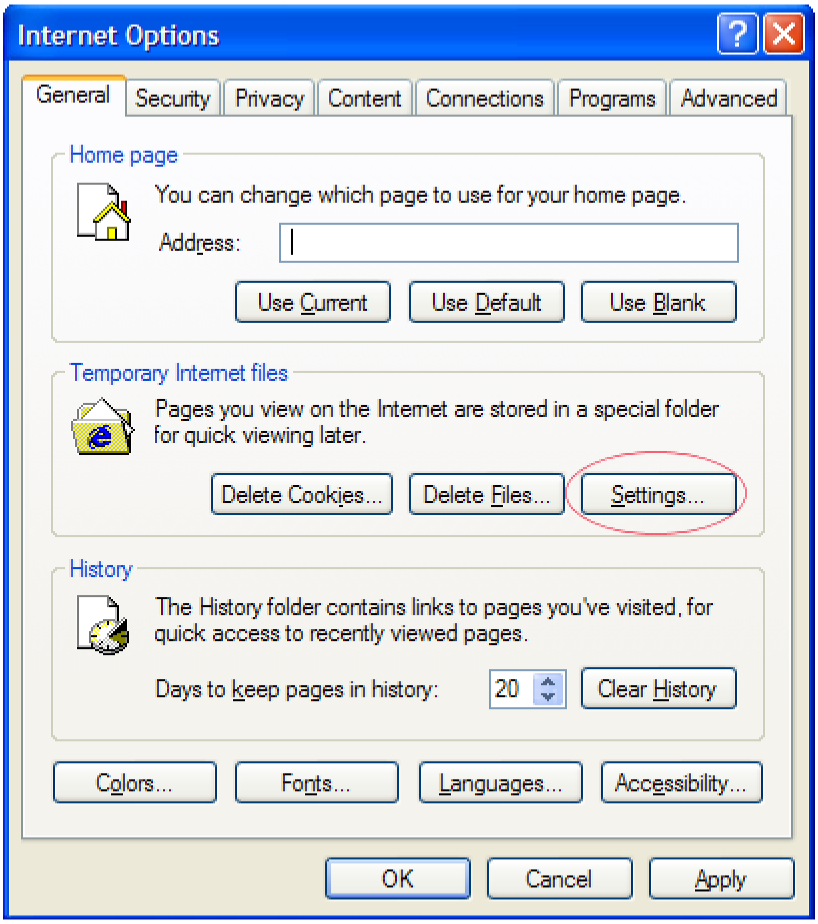
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

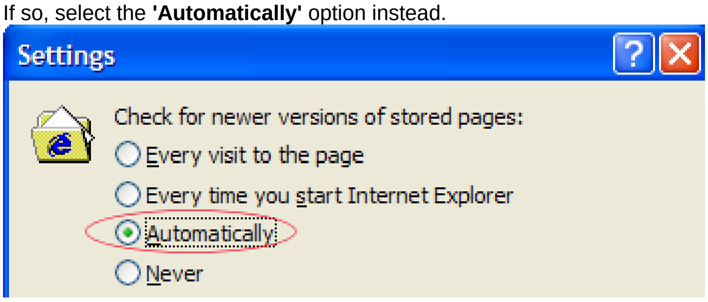
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



Adding the Road Map Gadget

The **Road Map** gadget shows versions which are due for release within a specified period of time, and a summary of progress made towards completing the issues in those versions.

What does it look like?

The **Road Map** gadget should appear as follows on the dashboard:

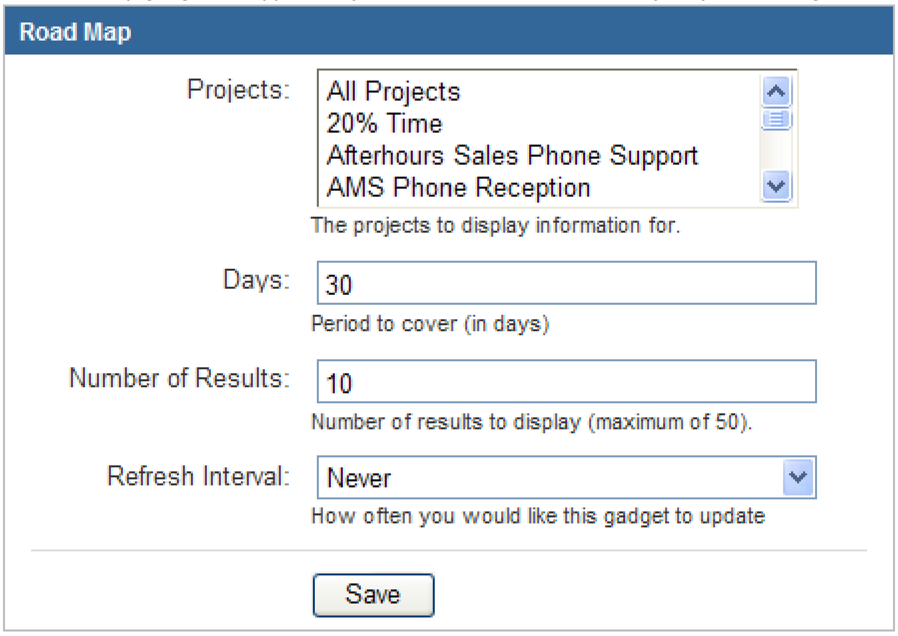
You can:

- Click the name of a project (e.g. 'Dove') to browse the project.
- Click the name of a version (e.g. 'Version 1') to browse the version.

- Click the progress bar (shown in red and/or green) to view the version's issues in the Issue Navigator.

Adding the 'Road Map' Gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Road Map**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Road Map gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Projects**' — select one or more projects (or 'All Projects') whose versions you wish to display in the gadget.
   b. '**Days**' — specify the period of time (in days) for which you wish to view versions due for release.
   c. '**Number of Results**' — type the maximum number of versions you wish the gadget to display per page.
   d. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Text Gadget

The **Text** gadget displays your specified HTML text on the dashboard.

The Text gadget is disabled by default as it allows users to enter arbitary HTML. To enable the text gadget, please refer to Enabling Plugins section.

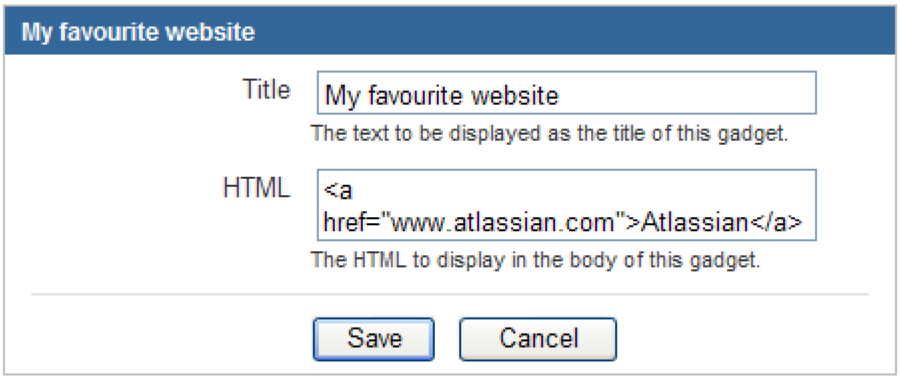
What does it look like?

The **Text** gadget should appear as follows on the dashboard:

This gadget is only available if your JIRA administrator has enabled the '**Text**' module in the '**JIRA Gadgets Plugin**'. It is disabled by default because it is a potential security risk, as it can contain arbitrary HTML which could potentially make your JIRA system vulnerable to XSS attacks.

Adding the 'Text' Gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Text**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Text gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Title**' — type a heading for this gadget.
   b. '**Body**' — type the body text; this may include HTML.
4. Click the **'Save'** button.

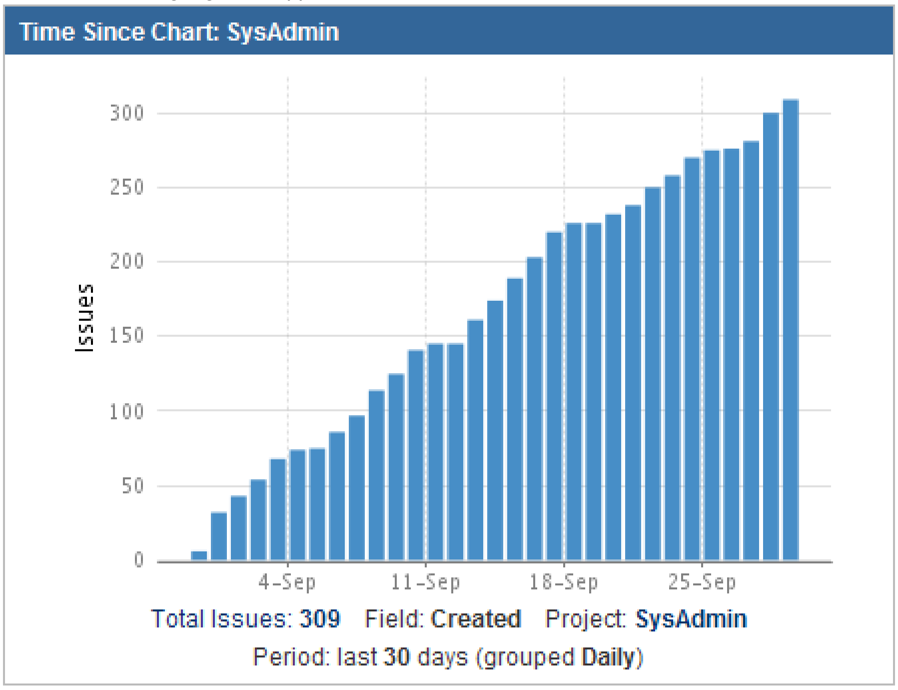
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Time Since Issues Gadget

The **'Time Since'** gadget displays a bar chart showing the number of issues for which your chosen date field (e.g. 'Created', 'Updated', 'Due', 'Resolved', or a custom field) was set on a given date. The report is based on your choice of project or issue filter, and your chosen units of time (ie. hours, days, weeks, months, quarters or years).

What does it look like?

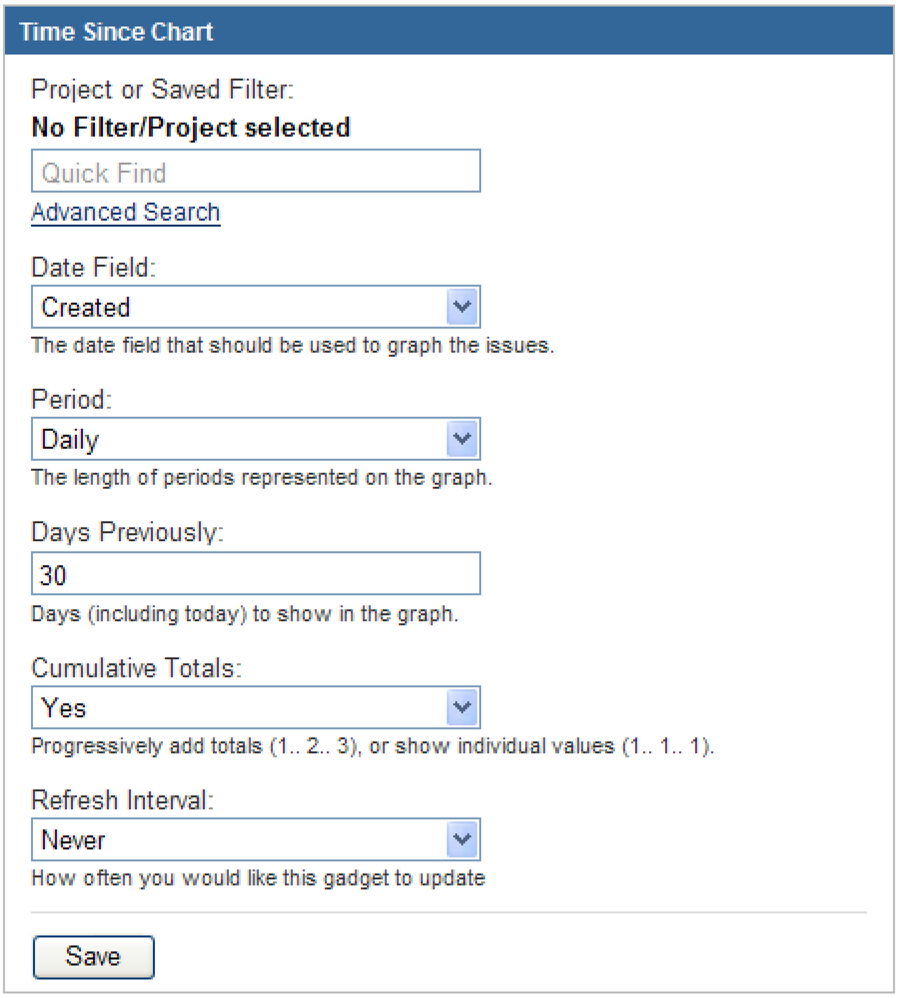
The **'Time Since'** gadget will appear as follows on the dashboard:



Click the **'more detail'** link to go to the full-size report and data table.

Adding the 'Time Since' Gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Time Since**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Time Since gadget will appear on your dashboard as follows, ready for you to configure:



a. '**Project or Saved Filter**' — start typing the name of the project or filter, or click the '**Advanced Search**' link to search for a project or filter.
b. **'Date Field'** — select the date in which you are interested (e.g. **'Created'**, **'Updated'**, **'Due'** *, **'Resolved'**, or a custom field of type 'Date').
*Note: only available if time tracking has been enabled by your JIRA administrator.
c. **'Period'** — select the timeframe on which the report will be based: **'Hourly'** / **'Daily'** / **'Weekly'** / **'Quarterly'** / **'Yearly'**
d. **'Days Previously'** — enter the number of days' worth of data (counting backwards from today) to be included in the report.
e. **'Cumulative Totals?'** — choose either:
    - **'Yes'** to progressively add data to the preceding column; or
    - **'No'** to show just a single value in each column.
f. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).

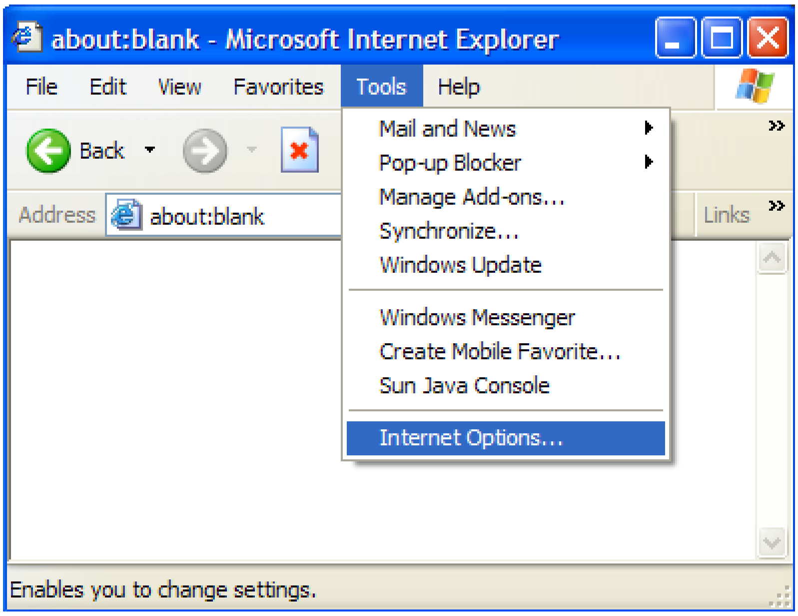
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

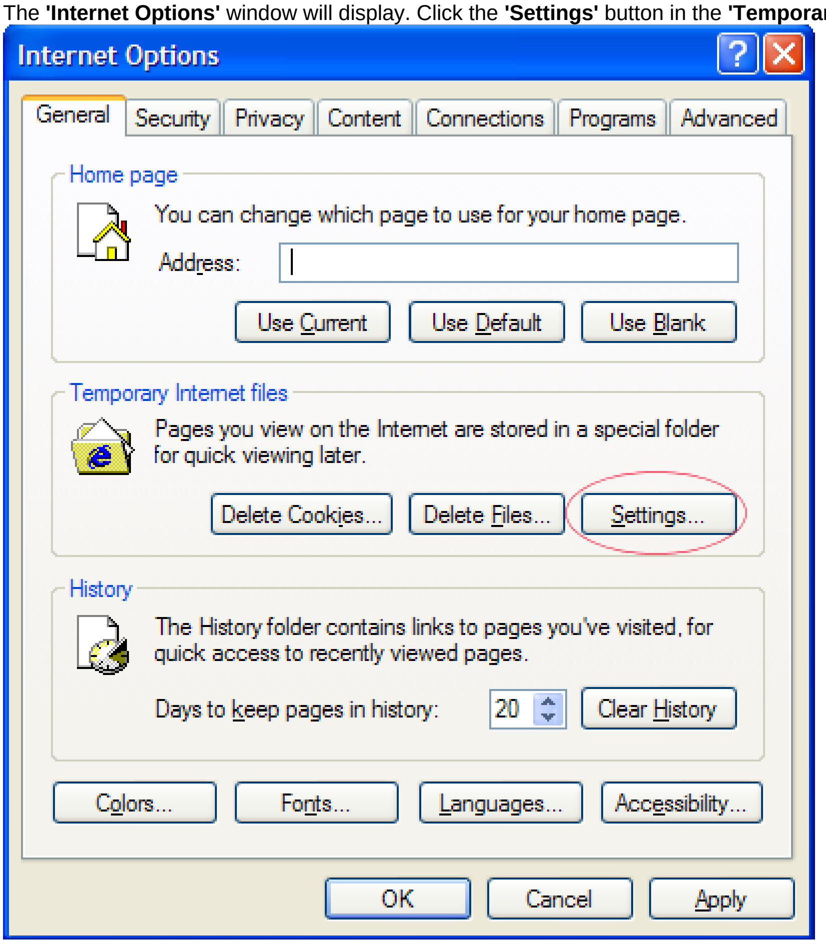
Configuring your Internet Explorer cache settings

If you use Internet Explorer, you will need to configure your browser to be able to print pages with charts correctly:

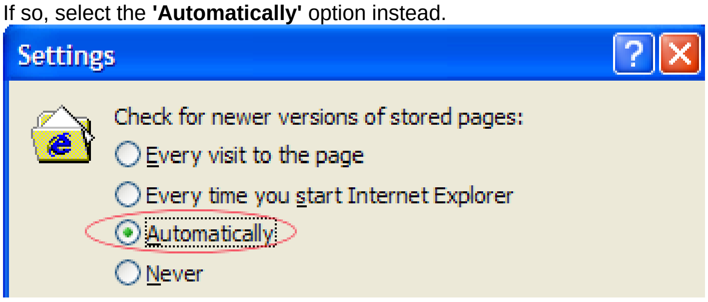
1. Select **'Internet Options'** from the **'Tools'** menu:



2. The **'Internet Options'** window will display. Click the **'Settings'** button in the **'Temporary Internet files'** (i.e. cache) section:



3. The **'Settings'** window will display. Ensure that you have do not have the **'Every visit to the page'** (i.e. no caching) option selected. If so, select the **'Automatically'** option instead.



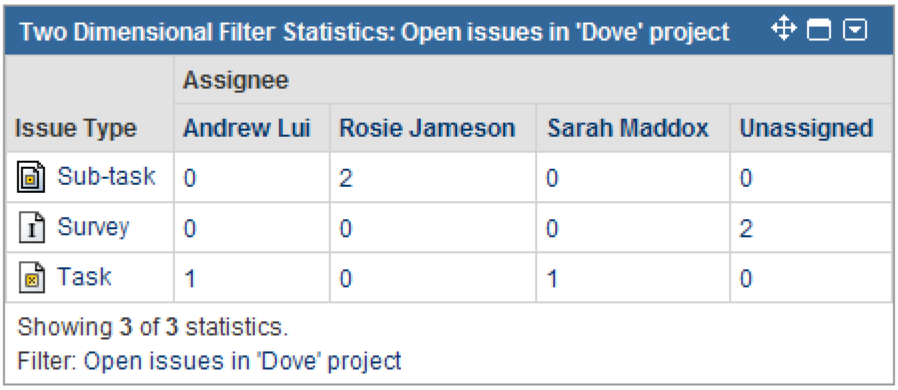
Adding the Two-Dimensional Filter Statistics Gadget

The **Two Dimensional Filter Statistics** gadget displays statistical data based on a specified issue filter, in a configurable table format.

For example, you could create a filter to retrieve all open issues in a particular project. You can then configure the gadget to display the statistical data on this collection of issues, in a table with configurable axes — e.g. Assignee versus Issue Type.

What does it look like?

The **Two Dimensional Filter Statistics** gadget should appear as follows on the dashboard:



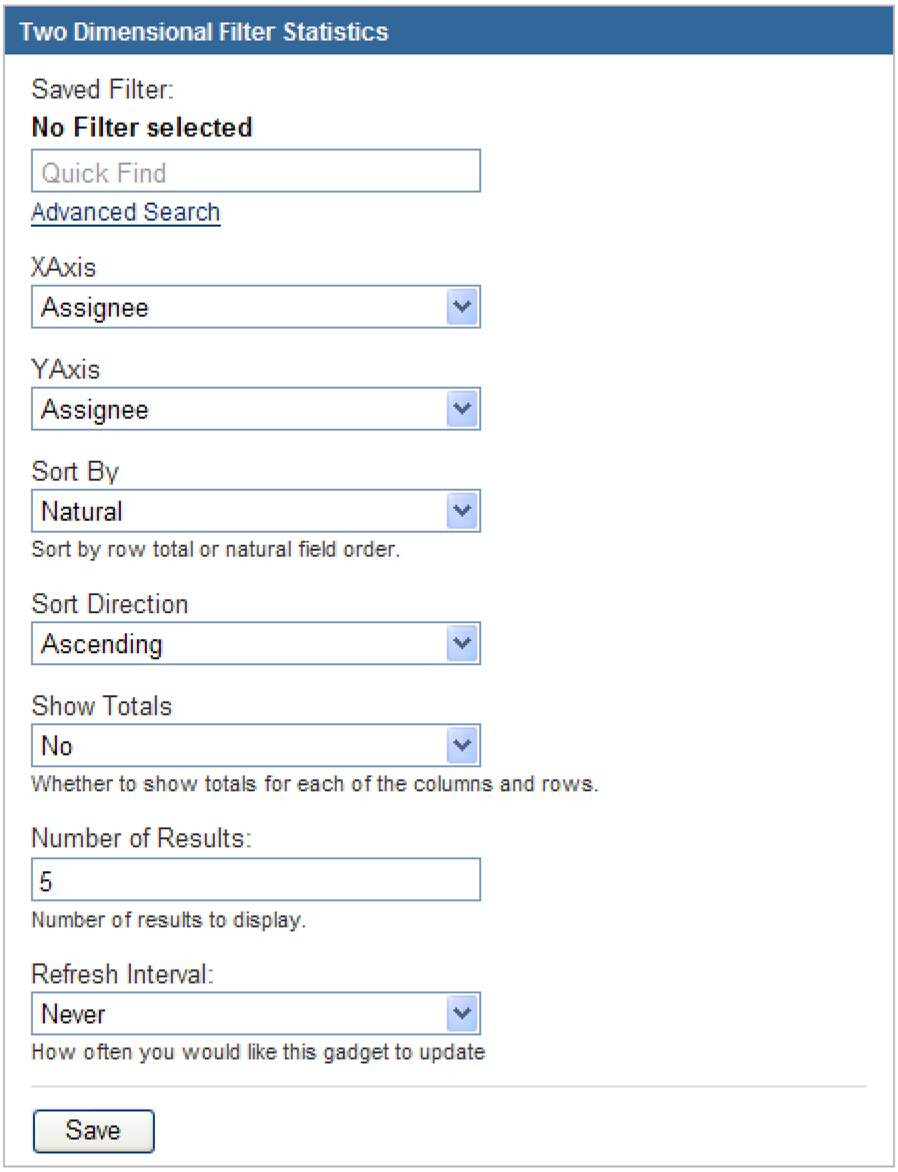
Two Dimensional Filter Statistics: Open issues in 'Dove' project

	Assignee			
Issue Type	Andrew Lui	Rosie Jameson	Sarah Maddox	Unassigned
Sub-task	0	2	0	0
Survey	0	0	0	2
Task	1	0	1	0

Showing 3 of 3 statistics.
Filter: Open issues in 'Dove' project

Adding the Two Dimensional Filter Statistics gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Two Dimensional Filter Statistics**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Two Dimensional Filter Statistics gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Saved Filter**' — start typing the name of the filter, or click the '**Advanced Search**' link to search for a filter/select one of your favourite filters/select a filter that you have created.
   b. '**X Axis**' — select an issue field[1] on which the X-axis will be based.
   c. '**Y Axis**' — select an issue field[1] on which the Y-axis will be based.
   d. '**Sort By**' — select how to sort the values of your selected field:
      - '**Natural**' — this will use the field's native sorting order, e.g. for the "Assignee" field, the assignee names would be sorted alphabetically.
      - '**Total**' — this will sort by the number of issues that match each value, e.g. for the "Assignee" field, the assignee names would be sorted by the number of issues assigned to each person.
   e. '**Sort Direction**' — select whether the field values should be sorted in **Ascending** or **Descending** order.
   f. '**Show Totals**' — select whether to show row/column totals.
   g. '**Number of Results**' — type the maximum number of rows/columns that you want the gadget to display per page.
   h. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).

4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

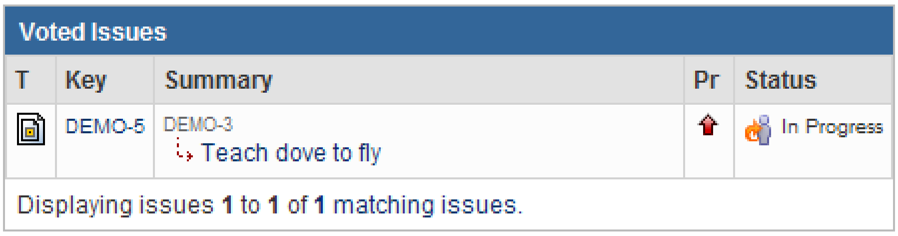
[1] If choosing a custom field, please note that the following types of custom fields are supported by this gadget out-of-the-box: 'Group picker', 'Multi select', 'User picker', 'Select list' and 'Version picker'.

Adding the Voted Issues Gadget

The **Voted Issues** gadget shows issues for which you have voted.

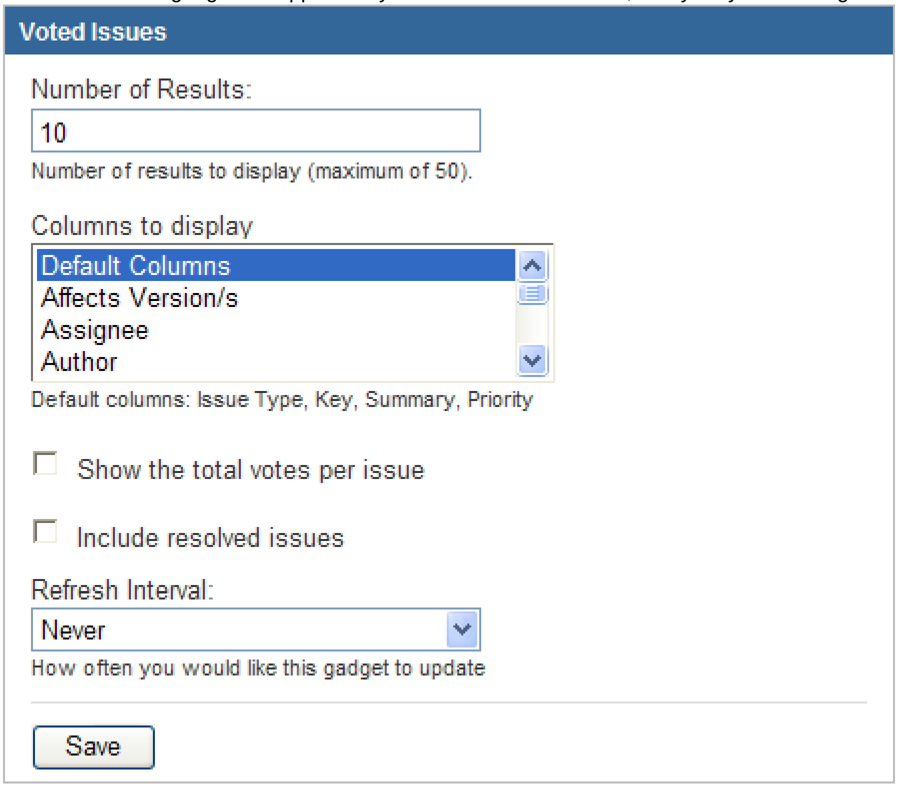
What does it look like?

The **Voted Issues** gadget should appear as follows on the dashboard:



Adding the 'Voted Issues' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Voted Issues**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Voted Issues gadget will appear on your dashboard as follows, ready for you to configure:



   a. **'Number of results'** — specify the maximum number of issues you wish the gadget to display per page.
   b. '**Columns to display**' — select the column(s) (i.e. issue fields) that you want the gadget to display, or choose '**Default Columns**' to display Issue Type, Key, Summary and Priority.
   c. **'Show total votes'** — select this if you wish the gadget to display the number of people who have voted for each issue.
   d. **'Show resolved issues'** — select this if you wish the gadget to display all issues on which you have ever voted. Leave it unselected if you wish the gadget to only display unresolved issues.
   e. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

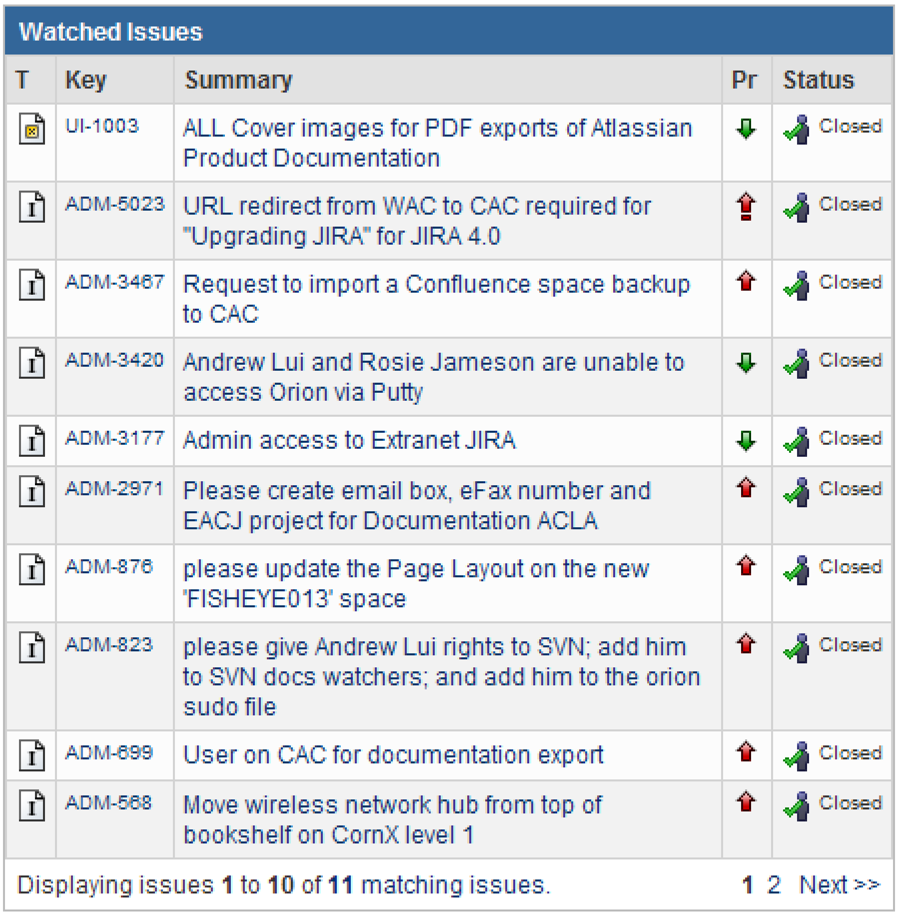
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Watched Issues Gadget

The **Watched Issues** gadget shows issues which you are watching.

What does it look like?

The **Watched Issues** gadget should appear as follows on the dashboard:



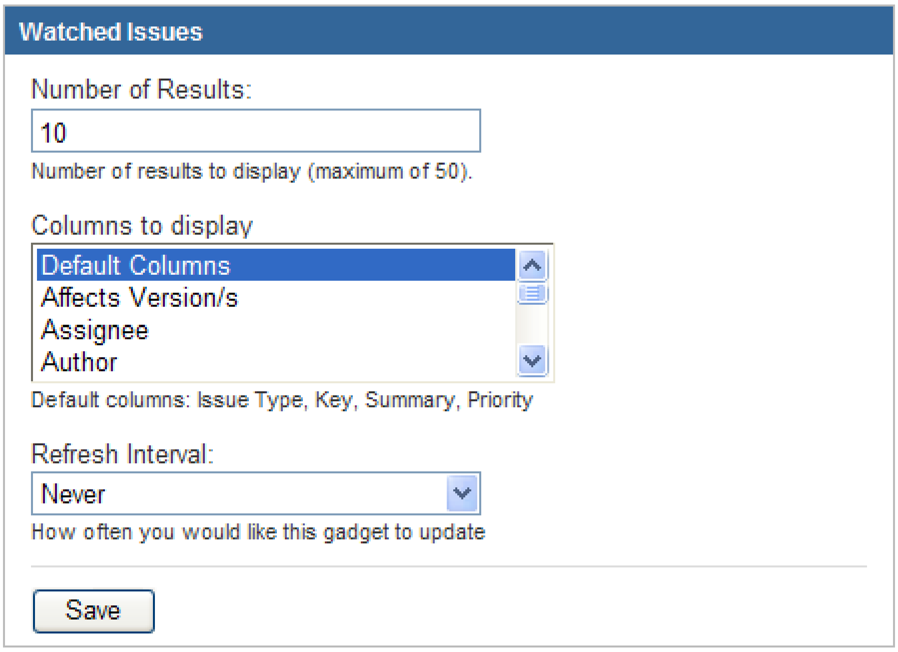
Watched Issues

T	Key	Summary	Pr	Status
	UI-1003	ALL Cover images for PDF exports of Atlassian Product Documentation		Closed
	ADM-5023	URL redirect from WAC to CAC required for "Upgrading JIRA" for JIRA 4.0		Closed
	ADM-3467	Request to import a Confluence space backup to CAC		Closed
	ADM-3420	Andrew Lui and Rosie Jameson are unable to access Orion via Putty		Closed
	ADM-3177	Admin access to Extranet JIRA		Closed
	ADM-2971	Please create email box, eFax number and EACJ project for Documentation ACLA		Closed
	ADM-876	please update the Page Layout on the new 'FISHEYE013' space		Closed
	ADM-823	please give Andrew Lui rights to SVN; add him to SVN docs watchers; and add him to the orion sudo file		Closed
	ADM-699	User on CAC for documentation export		Closed
	ADM-568	Move wireless network hub from top of bookshelf on CornX level 1		Closed

Displaying issues **1** to **10** of **11** matching issues. **1** 2 Next >>

Adding the 'Watched Issues' Gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Watched Issues**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Watched Issues gadget will appear on your dashboard as follows, ready for you to configure:



   a. '**Number of results**' — type the maximum number of issues that you want the gadget to display per page.
   b. '**Columns to display**' — select the column(s) (i.e. issue fields) that you want the gadget to display, or choose '**Default Columns**' to display Issue Type, Key, Summary and Priority.
   c. '**Refresh Interval**' — select how often you want the gadget to update the displayed activity (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Heat Map Gadget

The **Heat Map** gadget displays the relative weighting of values of a specified field in issues returned from a specified project or saved filter.

For instance, the gadget can be configured to display a heat map of the popularity of the different priorities of issues in a particular project.

What does it look like?

The **Heat Map** gadget should appear as follows on the dashboard:

Adding the 'Heat Map' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Heat Map**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Heat Map gadget will appear on your dashboard.
   a. '**Project or Saved Filter**' — start typing the name of the project or filter, or click the '**Advanced Search**' link to search for a project or filter.
   b. '**Statistic Type**' — select the field (e.g. Assignee; Priority; etc) on which the issues will be grouped.
   c. '**Refresh Interval**' — select how often you want the gadget to update (never / every 15 minutes / every 30 minutes / every hour / every two hours).
4. Click the **'Save'** button.

To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Adding the Labels Gadget

The **Labels** gadget displays a list of all the labels in a specified project.

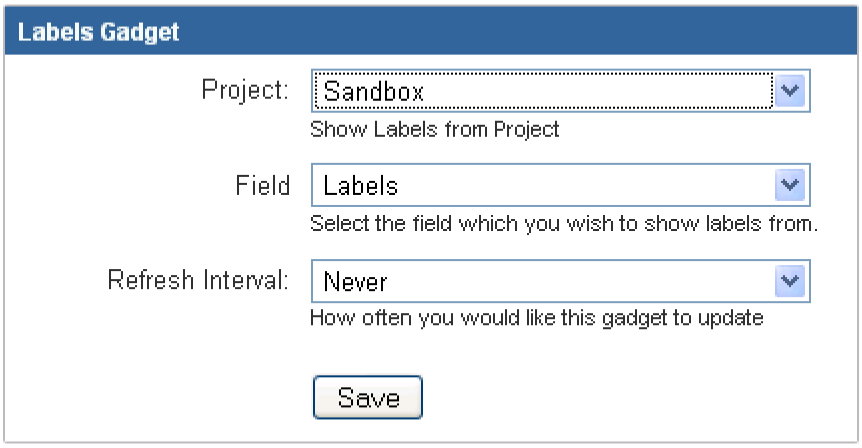
What does it look like?

The **Labels** gadget should appear as follows on the dashboard:

You can click any label to go to the issue Navigator and view the issues which have that label.

Adding the 'Labels' gadget to your Dashboard

1. Go to your JIRA dashboard and click '**Add Gadget**'.
2. The '**Gadget Directory**' will appear. Locate the '**Labels**' gadget and click the '**Add it Now**' button. Then click the '**Finished**' button at the bottom of the Gadget Directory.
3. The Labels gadget will appear on your dashboard, ready for you to configure:



a. '**Project**' — select the name of the project in which you are interested.
b. '**Labels**' — select the field in which you are interested. The list will include the field 'Labels', plus any other custom fields of type 'Label' that have been defined by your JIRA administrator.
   If you are using GreenHopper, you may want to choose the Labels field called 'Epics'.
c. '**Refresh Interval**' — select how often you want the gadget to update (never / every 15 minutes / every 30 minutes / every hour / every two hours).

4. Click the **'Save'** button.

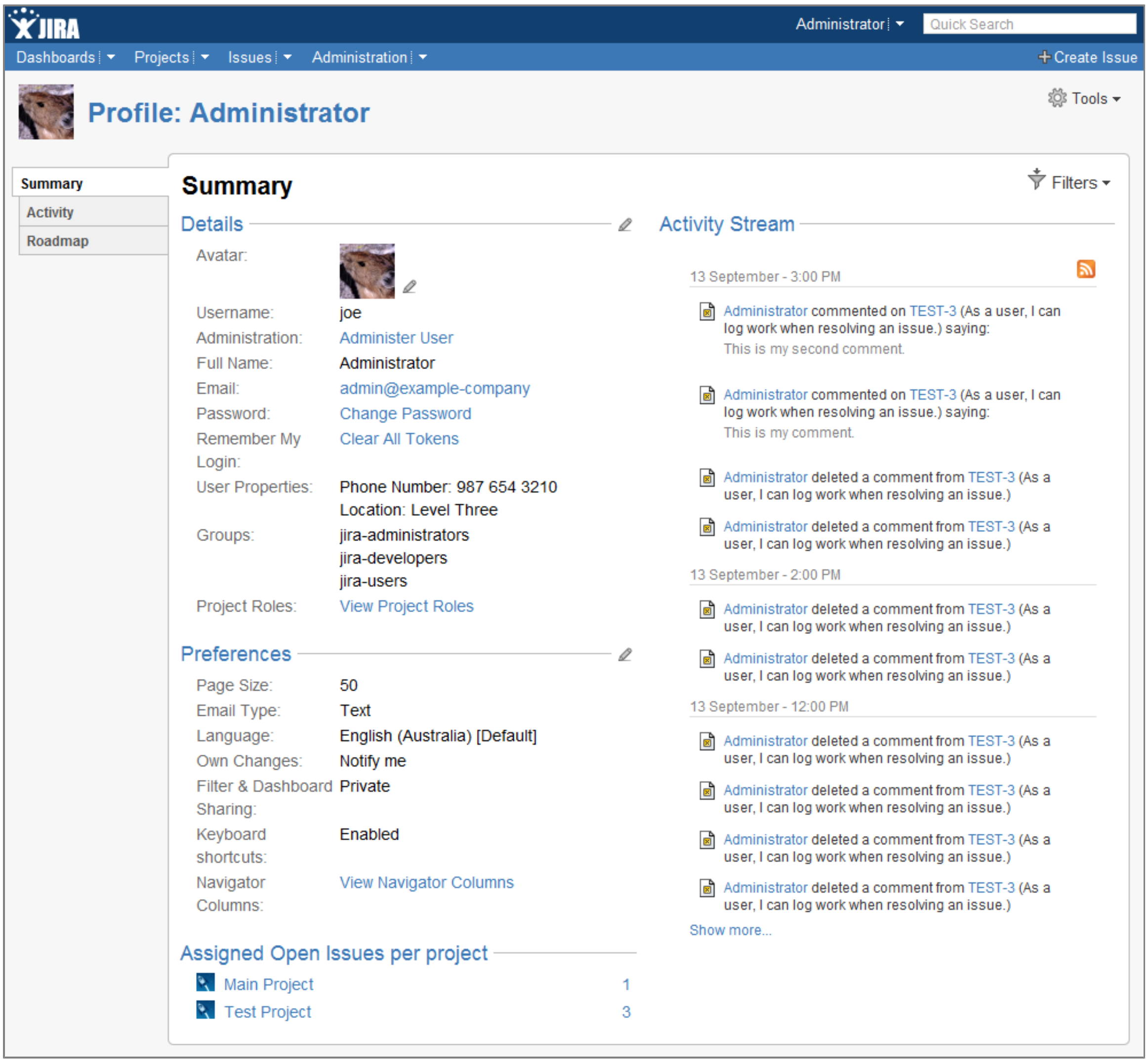
To move the gadget to a different position on the dashboard, simply drag-and-drop. You can also change the look and behaviour of the gadget.

Managing your User Profile

Your JIRA user profile is where you specify your JIRA settings (e.g. your email address, and the format in which you would like to receive email notifications). It also contains useful links to a number of personalised reports.

To view your JIRA user profile:

- Click your user name at the top-right of the page and the 'Summary' tab page of your 'User Profile' will be displayed:



The **Summary** tab page shows your personal details registered in JIRA, your personal JIRA preferences, the number of open issues assigned to you by project and a list of your recent activity.

- On the **Summary** tab page, you can do the following:
  - In the **Details** section:
    - Click the **edit** icon at the top-right of the section to open the **Edit Profile** dialog box. From here, you can to edit the following details:
      - **Full Name** – your display-name – that is, the name by which you are known in JIRA.
      - **Email** – the email address to which your JIRA notifications will be sent.
      - Click the '**Update**' button to save your changes.
    - Click the **add user avatar** icon  (or its adjacent **edit** icon) to add an avatar to your user profile.
      If you have already added a user avatar to your JIRA profile, that avatar will appear in place of the **add user avatar** icon above.
    - Click the '**Administer User**' link to view or edit that user's details in JIRA's administration area.
      This option is only available to users who are **JIRA Administrators**.
    - Click the **email address** to send an email to that user via your registered email client application.
    - Click the '**Change Password**' link to change your JIRA password.
    - Click the '**Clear All Tokens**' link to clear your 'Remember my login' tokens. This feature is useful if you have accessed JIRA in a public environment, selected the '**Remember by login...**' check box before logging in, but you may have forgotten to log out and do not wish others to access JIRA through your account. See Clearing 'Remember my login' Tokens for more information.
    - Click the '**View Project Roles**' link to view or edit that user's project roles in JIRA's administration area.
      This option is only available to users who are **JIRA Administrators**.
  - In the **Preferences** section:
    - Click the **edit** icon at the top-right of the section to open the **Updated User Preferences** dialog box. From here, you can edit the following details:

        - **Page Size** – The number of issues displayed on each Issue Navigator page. This field is mandatory and the default value is 50.
        - **Email type** – The format (text or HTML) in which JIRA sends its outgoing email notifications.
        - **Language** – Your preferred language.
        - **Own Changes** – Choose between making JIRA send you email notifications about issue updates made by either both you and other people (**Notify me**) or other people only (i.e. **Do not notify me**).
        - **Filter & dashboard sharing** – Choose between making JIRA share dashboards and filters with all other users by default upon creation (**Public**) or restrict dashboards and filters to your viewing only by default upon creation (**Private**).
        - **Keyboard shortcuts** – Choose between making JIRA's Keyboard Shortcuts feature either **Enabled** or **Disabled**.
        - Click the '**Update**' button to save your changes.
    - Click '**View Navigator Columns**' to choose which fields appear in your Issue Navigator.

- In the **Assigned Open Issues per project** section, you can do the following:
    - Click the name of the project on the left to browse that project's roadmap.
    - Click the number of open issues on the right to display the Issue Navigator, which shows your list of open issues associated with the project on the left.

- In the **Activity Stream** on the right, click any item to jump to an issue you have recently been involved with.

- Click the '**Filters**' menu in the top right to open it. From this menu you can:
    - Click '**Assigned**' to list all issues that are assigned to you, irrespective of their current status.
    - Click '**Assigned & Open**' to list the issues that are assigned to you and are unresolved.
    - Click '**Assigned & In Progress**' to list the issues that are assigned to you and whose current status is **In Progress**.
    - Click '**Reported**' to list the issues that were created by you, irrespective of their current status.
    - Click '**Reported & Open**' to list the issues that were created by you and are unresolved.
    - Click '**Voted**' to view the list of issues for which you have voted, irrespective of their current status.
    - Click '**Voted & Open**' to view the list of issues for which you have voted and are unresolved.
    - Click '**Watched**' to view the list of issues that you are watching, irrespective of their current status.
    - Click '**Watched & Open**' to view the list of issues that you are watching and are unresolved.

The **Roadmap** tab page shows your 'Personal Road Map' report, which provides quick access to work assigned to you across all projects.

- On the **Roadmap** tab page, you can do the following:
    - In the **Change Project** field, select a project to show a personal road map report for work assigned to you for that project. This is similar in functionality to browsing a project's roadmap, although the personal road map shows only issues assigned to you.
    - Click the '**View global road map**' link to show all work required for that project.

The **Activity** tab page provides a full-page, wider view of the **Activity Stream** on the **Summary** tab page.

The **top navigation bar** provides access to other areas of JIRA which you can customise:

- Click '**Manage Dashboards**' from the down-arrow on the **Dashboards** tab to customise your JIRA dashboard.
- Click '**View All Projects**' from the down-arrow on the **Projects** tab to browse details of your JIRA projects.
- Click '**Manage Filters**' from the down-arrow on the **Issues** tab to view and edit your issue filters.

The **Tools** menu provides access to additional functions, which are available from any tab page in your JIRA user profile.

- Click the '**Tools**' menu in the top right to open it. From this menu you can click '**View OAuth Access Tokens**' to view and edit your OAuth Tokens.

Note
If your JIRA administrator has configured **External User Management** or **External Password Management** (e.g. if you are using your Active Directory or LDAP username to login to JIRA), the **Edit Profile** and **Change Password** links may not be available.

Adding a User Avatar

A user avatar is used as the icon for your profile to illustrate your comments on an issue and your Hover Profile.

On this page:

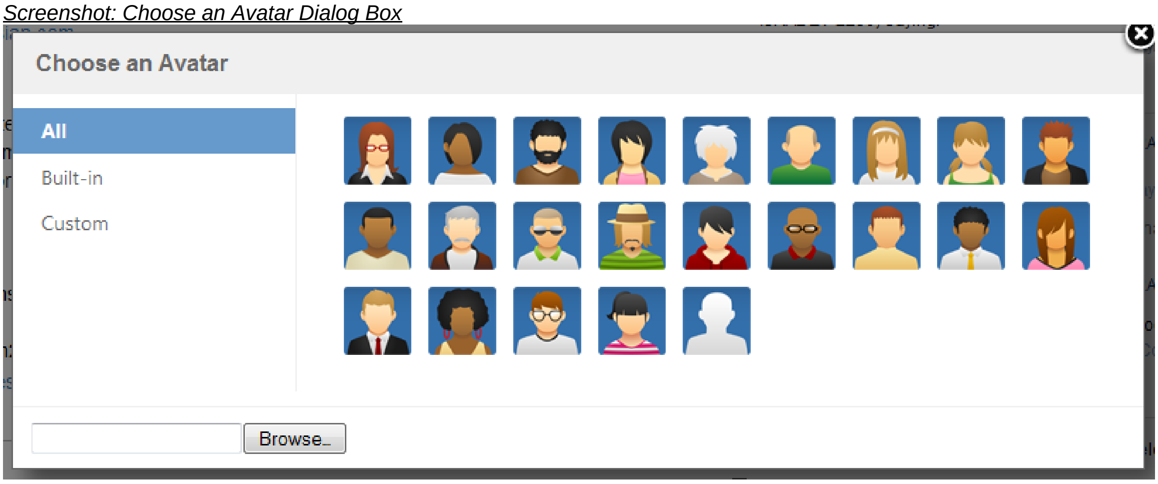
- Choosing a User Avatar
- Uploading a Custom Avatar

Choosing a User Avatar

To choose your user avatar:

1. Click your user name at the top-right of the page to open your User Profile at the **Summary** tab page.

2. In the **Details** section, click the **add user avatar** icon  (or its adjacent **edit** icon). The **Choose an Avatar** dialog box opens.
   If you have already added a user avatar to your JIRA profile, that avatar will appear in place of the **add user avatar** icon above.

   Screenshot: Choose an Avatar Dialog Box
   

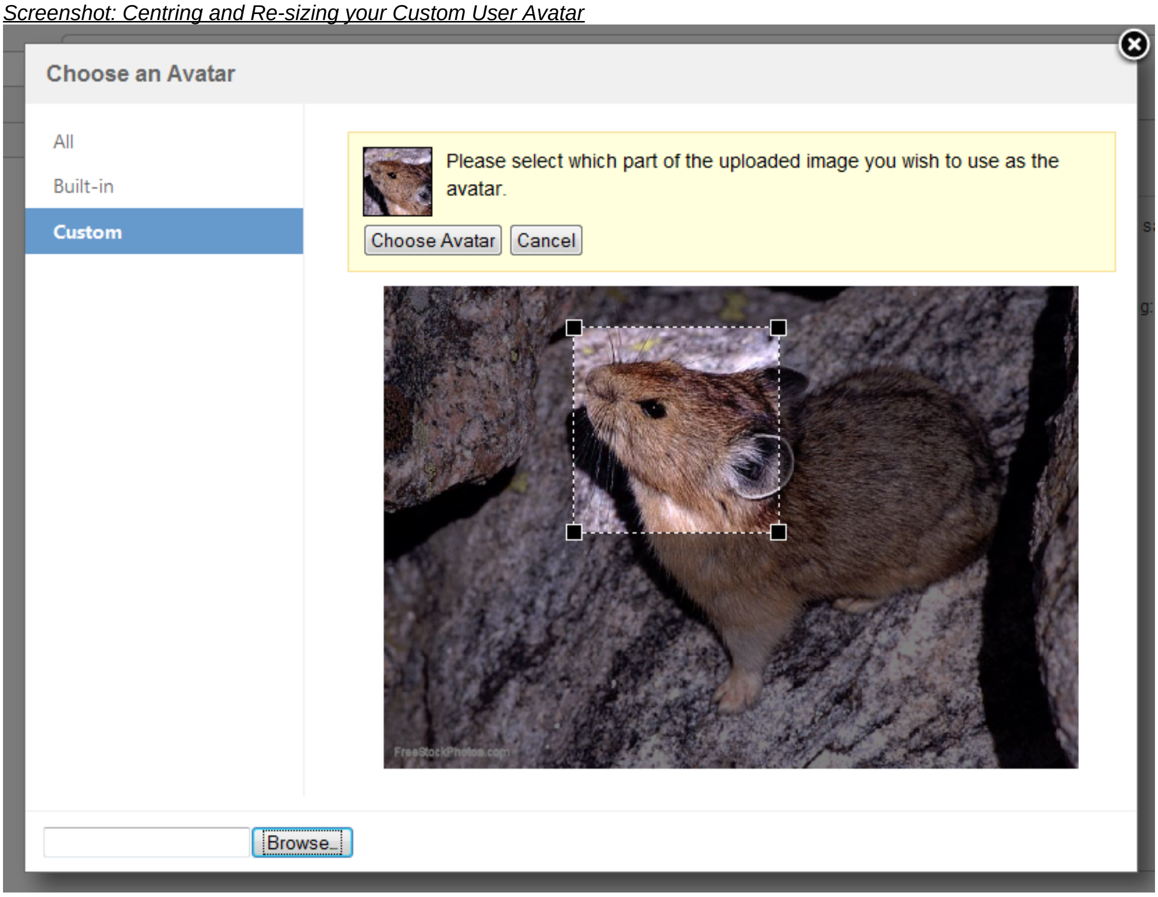
3. On the left of the dialog box, choose one of the following categories from which to select your user avatar:
   - **All** — Shows all built-in and custom user avatars.
   - **Built-in** — Shows only the user avatars which are pre-packaged with JIRA.
   - **Custom** — Shows only the custom user avatars which you have uploaded (see below).
4. Click a user avatar on the right of the dialog box to select it.

Uploading a Custom Avatar

To create a 'custom' user avatar from an image file:

1. Click your user name at the top-right of the page to open your User Profile at the **Summary** tab page.
2. In the **Details** section, click the **add user avatar** icon  (or its adjacent **edit** icon). The **Choose an Avatar** dialog box opens (see screenshot above).
   If you have already added a user avatar to your JIRA profile, that avatar will appear in place of the **add user avatar** icon above.
3. Click the '**Browse**' button and in the resulting dialog box, browse for and choose an image file.
4. Click and drag the centre of the superimposed square to select the centre of the new image.
   If desired, drag the corners of the square to re-size the area for your new image.

Screenshot: Centring and Re-sizing your Custom User Avatar



5. Click the '**Choose Avatar**' button to create the custom user avatar.

> - The image from your selected area will be cropped, re-sized to 48x48 pixels and saved.
> - A separate 16x16 pixel version of your custom user avatar will be generated for use in comments.
> - Custom user avatars can only be selected by the user who uploaded them.

Allowing OAuth Access

On this page:

- About OAuth Access Tokens
- Issuing OAuth Access Tokens
- Revoking OAuth Access Tokens
    - OAuth Access Token Table Details

About OAuth Access Tokens

OAuth access tokens allow you to:

- Use a JIRA gadget on an external, OAuth-compliant web application or website (also known as a 'consumer') ***AND***
- Grant this gadget access to JIRA data which is restricted or privy to your JIRA user account.

Before this can happen, your JIRA administrator must establish an OAuth relationship with this external web application or site by approving it as an OAuth consumer. For example, if you want to add a JIRA gadget to your Bamboo homepage and allow this gadget to access your restricted JIRA data, then your JIRA administrator must first approve Bamboo as an OAuth consumer.

Next, the JIRA gadget on the 'consumer' is granted access to your JIRA data via an 'OAuth access token', which acts as a type of 'key'. As long as the consumer is in possession of this access token, the JIRA gadget will be able to access JIRA data that is both publicly available and privy to your JIRA user account. You can revoke this access token at any time from your JIRA user account, otherwise, all access tokens expire after seven days. Once the access token is revoked or has expired, the JIRA gadget will only have access to publicly available data on your JIRA site.

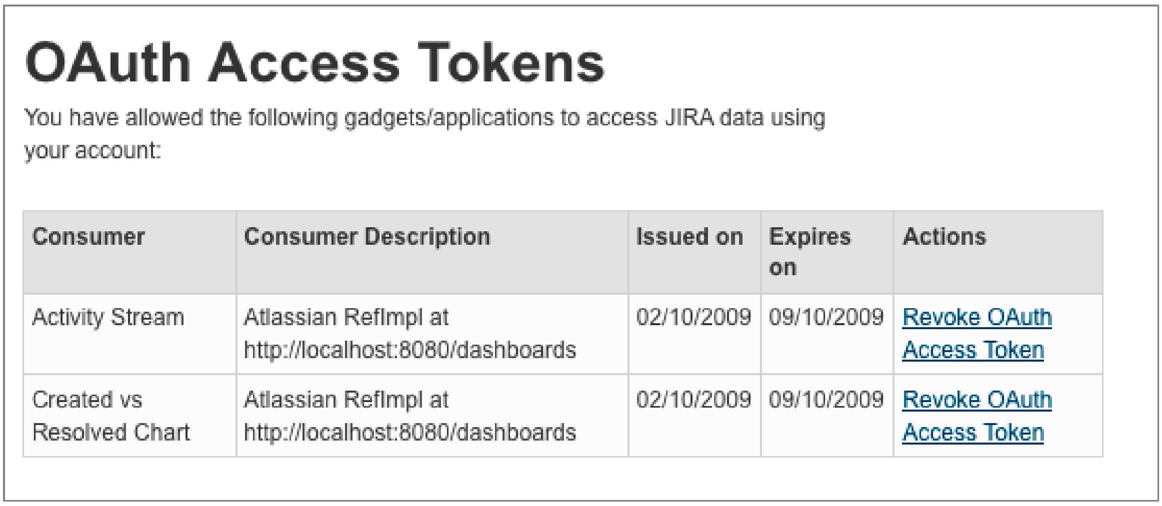
An OAuth access token will only appear in your user profile if the following conditions have been met:

1. Your JIRA Administrator has established an OAuth relationship between your JIRA site and the consumer. JIRA Administrators should refer to Configuring OAuth for more information about establishing these OAuth relationships.

2. You have accessed a JIRA gadget on a consumer and have allowed this gadget access to your JIRA data. See Issuing OAuth

Access Tokens, below for details on this process.

Screenshot: Viewing your OAuth Access Tokens



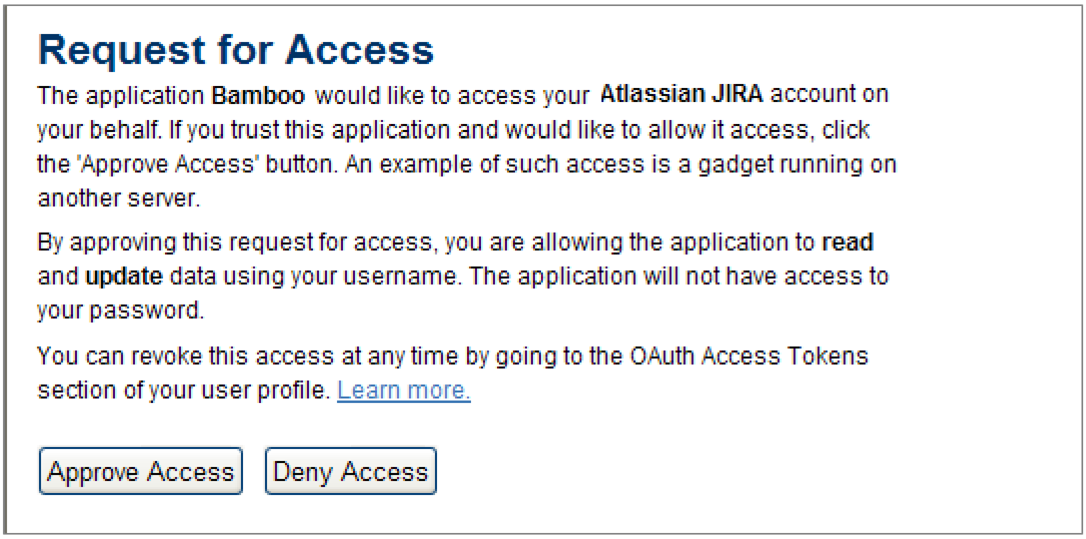
Issuing OAuth Access Tokens

An OAuth access token is issued by JIRA to provide one of its gadgets on a consumer, access to your JIRA data (that is, data which is restricted to your JIRA user account).

To allow a JIRA gadget on a consumer, access your JIRA data,

1. When you are using a JIRA gadget on a consumer (such as Bamboo) and this gadget requires access to your JIRA data, you will first be prompted to log in to JIRA (if you have not already done so).
2. Once you have logged in to JIRA, you will be prompted with a '**Request for Access**' message:

   Screenshot: Request for Access Message

   At this point, JIRA is preparing to issue the JIRA gadget (on the consumer) with an OAuth access token.
3. To grant the gadget access to your JIRA data, click the '**Approve Access**' button. The consumer application will receive the OAuth access token from your JIRA site. This access token is specific to this gadget and as long as the token resides with the gadget, your gadget will have access to your JIRA data.

Revoking OAuth Access Tokens

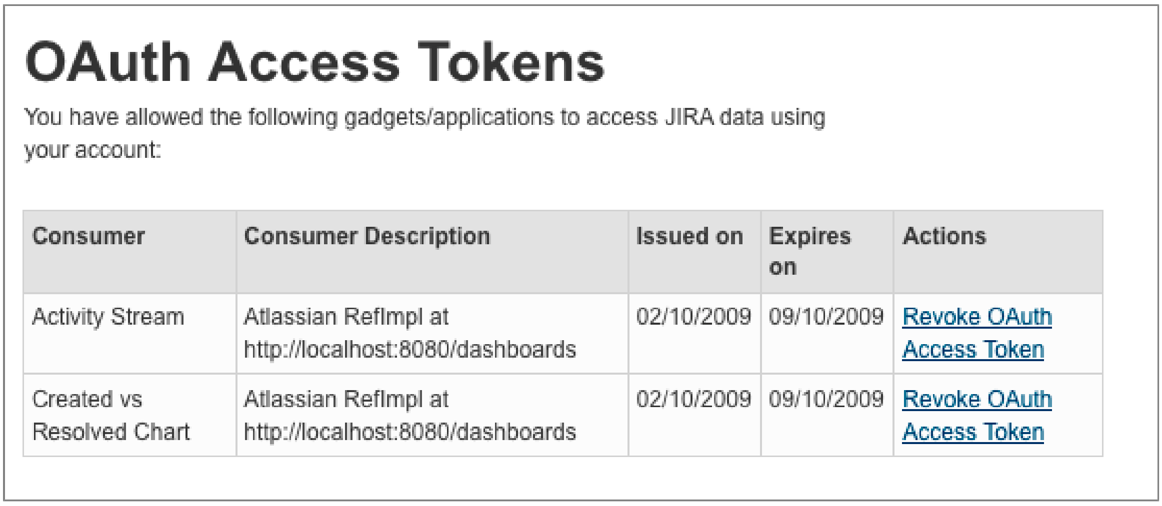
You can revoke an OAuth access token to deny a JIRA gadget on a consumer access to JIRA data which is restricted to your JIRA user account. You can only revoke OAuth access tokens that you have allowed JIRA to issue previously.

To prevent a JIRA gadget on a consumer, from accessing your JIRA data,

1. Click your user name at the top-right of the page to open your User Profile at the 'Summary' tab page.

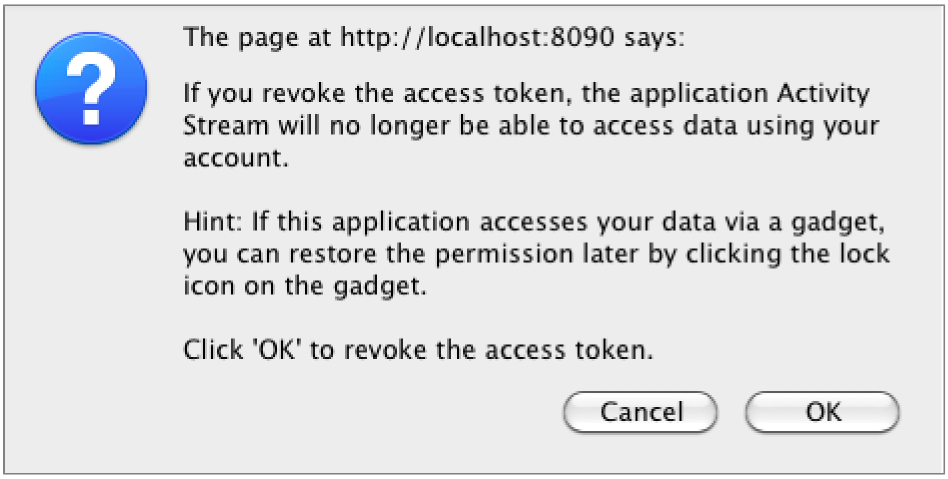
2. Click the '**Tools**' menu and select the '**View OAuth Access Tokens**' menu item.
3. The '**OAuth Access Tokens**' page will be displayed.

   Screenshot: Viewing your OAuth Access Tokens



   Your list of OAuth access tokens is presented in a tabular format, with each access token presented in separate rows and each property of these tokens presented in a separate columns. Refer to the OAuth Access Token Table Details section below for more information about this table.

4. Locate the JIRA gadget and its associated consumer application whose OAuth access token you wish to revoke and click its 'Revoke OAuth Access Token' link in the 'Actions' column.
5. You may be prompted to confirm this action. If so, click the '**OK**' button.



   The gadget's access token is revoked and the JIRA gadget on the consumer will only have access to publicly available JIRA data.

OAuth Access Token Table Details

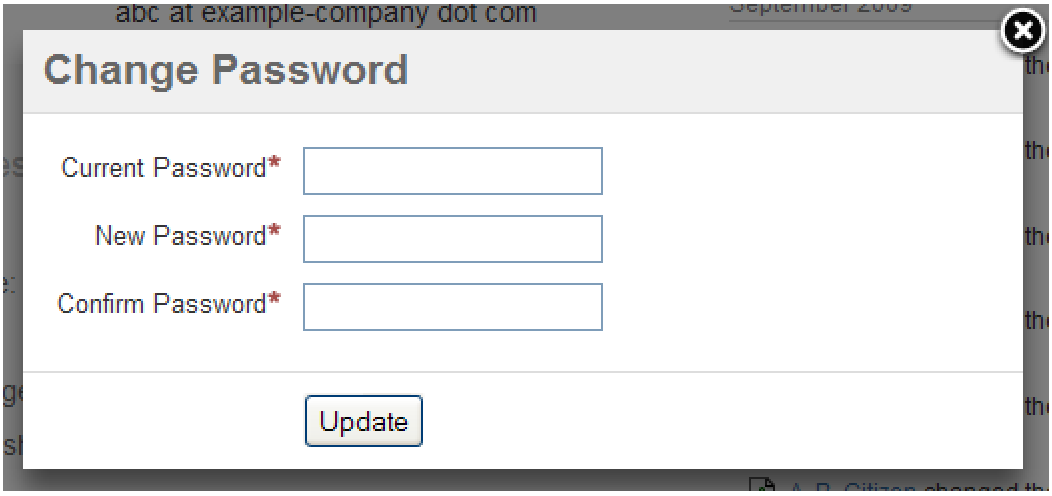
Column Name	Description
Consumer	The name of the JIRA gadget that was added on the consumer.
Consumer Description	A description of this consumer application. This information would have been obtained from the consumer's own OAuth settings when an OAuth relationship was established between JIRA and that consumer. If the consumer is another Atlassian application, this information is obtained from the Consumer Info tab's 'Description' field of the OAuth Administration settings. The application's administrator can customise this Consumer Info detail.
Issued On	The date on which the OAuth access token was issued to the consumer by JIRA. This would have occurred immediately after you approved this gadget access to your JIRA data (privy to your JIRA user account).
Expires On	The date when the OAuth access token expires. This is seven days after the 'Issued On' date. When this date is reached, the access token will be automatically removed from this list.
Actions	The functionality for revoking the access token.

Changing your Password

To change your JIRA password:

1. Click your user name at the top-right of the page to open your User Profile at the **Summary** tab page.
2. In the **Details** section, click the '**Change Password**' link. The **Change Password** dialog box opens.
3. Type your old password into the **Current Password** field, and type your new password into the **New Password** and **Confirm Password** fields:

   Screenshot: Change Password Dialog Box

4. Click the '**Update**' button.

> If your JIRA administrator has configured 'External User Management' or 'External Password Management' (e.g. if you are using your Active Directory or LDAP username to login to JIRA), the '**Change Password**' link may not be available.

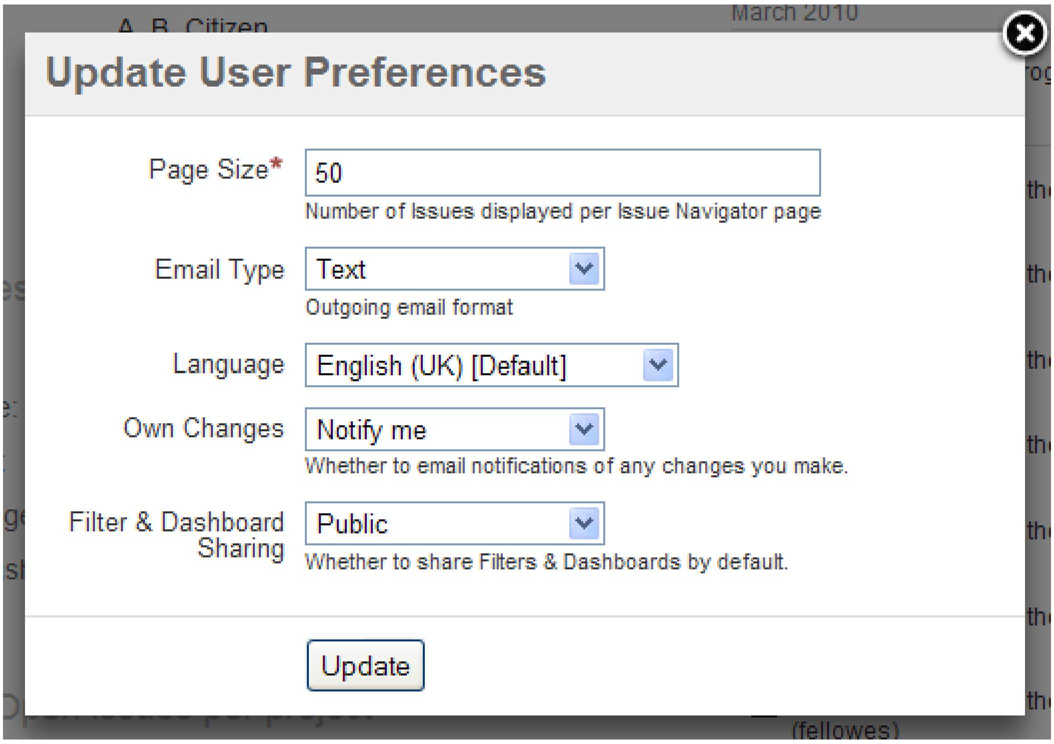
Choosing a Language

You can personalise your JIRA account to use a language of your choice.

To choose a language:

1. Click your user name at the top-right of the page to open your User Profile at the 'Summary' tab page.
2. In the 'Preferences' section, click the **edit** icon at the top-right. The 'Updated User Preferences' dialog box opens.
3. Select your language from the '**Language**' drop-down list:

   Screenshot: Update User Preferences Dialog Box



4. Click the '**Update**' button.

Please also see Choosing a Default Language.

Using Hover Profile

Hover Profile is a convenient popup balloon that provides quick access to key information about other JIRA users throughout the JIRA interface and issues they have been working on.

On this page:

- Accessing Hover Profile
- Using the Hover Profile Popup Balloon

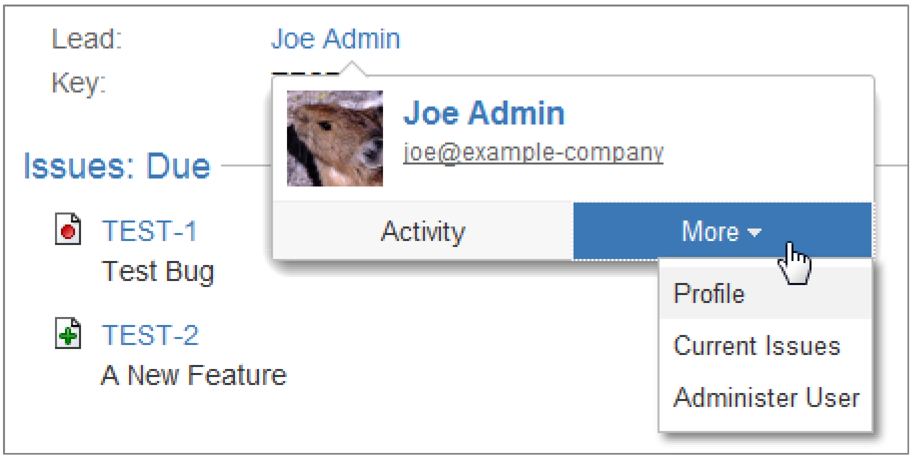
Accessing Hover Profile

When you move or hover your mouse over a user's **username** or **full name** on:

- an issue view,
- any issue listed in the Issue Navigator, or
- any of the project browser screens,

an interactive popup balloon appears.

Screenshot: The Hover Profile popup balloon



Please Note: The Hover Profile popup balloon is not available on user names which appear on activity streams and dashboard gadgets throughout the JIRA interface.

Using the Hover Profile Popup Balloon

The top part of the Hover Profile popup balloon shows the user's full name, avatar and their email address, as defined in their user profile. You can email a user from their Hover Profile by clicking their email address link, which opens up a new email message in your email client with that email address in the **To:** field.

The lower part of the Hover Profile popup balloon also provides easy access to the following information about a user, via the following links:

- **Activity** — the user's recent activity on the JIRA site.
- Click **More**, then:
    - **Profile** — the user's user profile page.
    - **Current Issues** — the user's list of unresolved issues (via the Issue Navigator).
    - **Administer User** *(only visible to **JIRA Administrators** who have the **JIRA Users** permission)* — the user's details in JIRA's user management area of the administration console.

JIRA Administrator's Guide

This manual contains information on administering your JIRA system:

Getting Help

Configuring the Layout and Design

- Customising the Look and Feel
- Choosing a Default Language
- Configuring the Default Issue Navigator
- Configuring the Default Dashboard
    - Using Dashboard Gadgets
    - Adding a Gadget to the Directory
    - Subscribing to Another Application's Gadgets
- Configuring an Announcement Banner
- Enabling Logout Confirmation

User and Group Management

- Configuring User Directories
    - Configuring the Internal Directory
    - Connecting to an LDAP Directory
        - Configuring the LDAP Connection Pool
        - Configuring an SSL Connection to Active Directory
    - Connecting to an Internal Directory with LDAP Authentication
    - Connecting to Crowd or Another JIRA Server for User Management
    - Managing Multiple Directories
    - Synchronising Data from External Directories
    - Managing Nested Groups
    - Diagrams of Possible Configurations for User Management
    - User Management Limitations and Recommendations
    - Allowing Other Applications to Connect to JIRA for User Management
- Enabling Public Signup and CAPTCHA
- Managing Users
- Managing Groups
- Managing Project Roles
- Migrating User Groups to Project Roles
- Viewing User Sessions
    - User access logging
- Clearing 'Remember my login' Tokens
    - Disabling Remember My Login on this Computer

Project Management

- Defining a Project
- Managing Project Role Membership
- Defining a Component
- Managing Versions
    - Creating Release Notes
- Configuring Project Keys

Configuring Security

- Configuring Issue Level Security
- Preventing Security Attacks
- Managing Project Permissions

- Managing Global Permissions
- Configuring Secure Administrator Sessions

Configuring Fields and Screens

- Configuring Built-in Fields
    - Defining 'Issue Type' Field Values
        - Associating Issue Types with Projects
    - Defining 'Priority' Field Values
    - Defining 'Resolution' Field Values
    - Defining 'Status' Field Values
    - Translating Resolutions, Priorities, Statuses and Issue Types
- Adding a Custom Field
    - Configuring a Custom Field
    - Creating Help for a Custom Field
- Specifying Field Behaviour
    - Associating Field Behaviour with Issue Types
    - Configuring Renderers
- Defining a Screen
    - Associating a Screen with an Issue Operation
    - Associating a Screen with an Issue Type

Configuring Workflow

- Activating Workflow
- Adding a Custom Event

Configuring Email Notifications

- Creating a Notification Scheme
- Customising Email Content
- Creating Issues and Comments from Email
- Configuring JIRA to Send SMTP Mail
    - Using Gmail as a JIRA Mail Server
- Configuring JIRA to Receive POP or IMAP Mail

Migrating from Other Issue Trackers

- Importing Data From FogBugz
- Importing Data From Mantis
- Importing Data from Bugzilla
- Importing Data From CSV
    - Commonly Asked CSV Questions and Known Issues
    - How to Import CSV Data with PVCS Command

Moving or Archiving Individual Projects

- Archiving a Project
- Splitting a JIRA instance

Integrating with a Source Control System

- Integrating JIRA with FishEye
- Integrating JIRA with CVS and ViewCVS
- Integrating JIRA with Subversion
- Integrating JIRA with Perforce
- Integrating JIRA with ClearCase

Integrating with a Build Management System

- Integrating JIRA with Bamboo

Configuring Global Settings

- Configuring JIRA Options
- Setting Properties and Options on Startup
    - Recognized System Properties for JIRA
- Advanced JIRA configuration with jira-application.properties
- Configuring File Attachments
- Configuring Sub-tasks
- Configuring Issue Linking
- Enabling Trackback
- Configuring Time Tracking
- Configuring the Whitelist
- Configuring Application Links
    - Adding an Application Link

- Configuring Authentication for an Application Link
    - Configuring Basic HTTP Authentication for an Application Link
    - Configuring OAuth Authentication for an Application Link
    - Configuring Trusted Apps Authentication for an Application Link
- Editing an Application Link
- Making an Application Link the Primary Link
- Relocating an Application Link
- Upgrading an Application Link
- Deleting an Application Link
- Configuring Link Rendering
- Configuring Entity Links for an Application Link
    - Linking your JIRA Project to another Entity
    - Making an Entity Link the Primary Link
    - Deleting an Entity Link

Server Administration

- Increasing JIRA Memory
- Using the Database Integrity Checker
- Precompiling JSP pages
- Database Indexing
- Logging and Profiling
    - Logging email protocol details
- Restoring Data
    - Restoring a Project from Backup
- Optimising Performance
- Backing Up Data
    - Automating JIRA Backups
    - Preventing users from accessing JIRA during backups
- Search Indexing
    - Re-Indexing after Major Configuration Changes
- Using robots.txt to hide from Search Engines
- Updating your JIRA License Details
- Viewing your System Information
- Generating a Thread Dump
- Performance Testing Scripts
- Finding the JIRA Support Entitlement Number (SEN)

Appendix A - Extending JIRA

- Managing JIRA's Plugins
- Listeners
- Services
- Jelly Tags
- JIRA Toolkit (Customer Support Extensions)
- Developer Guides
- Building JIRA from Source
    - How to Make a JIRA Patch
- API Documentation

Please see the *JIRA User's Guide* for an introduction to the concepts of issues and projects.

Getting Help

On this page:

- Where to Start
- Raising a Support Request
    - To raise a support request via your JIRA system
    - To raise a support request via the internet
- Creating a Support Zip

Where to Start

If you encounter any problems using or setting up JIRA, please let us know — we're here to help!

You may want to first search the following:

- the JIRA mailing list forums, where Atlassian staff and JIRA users can answer your questions.
- the JIRA Knowledge Base.

If you need further assistance, please raise a support request (see below).

Alternatively, if you feel you have encountered a bug in JIRA, or wish to request a feature, please file an issue. It is a good idea to first scan JIRA's Popular Issues — this helps to prevent duplicates.

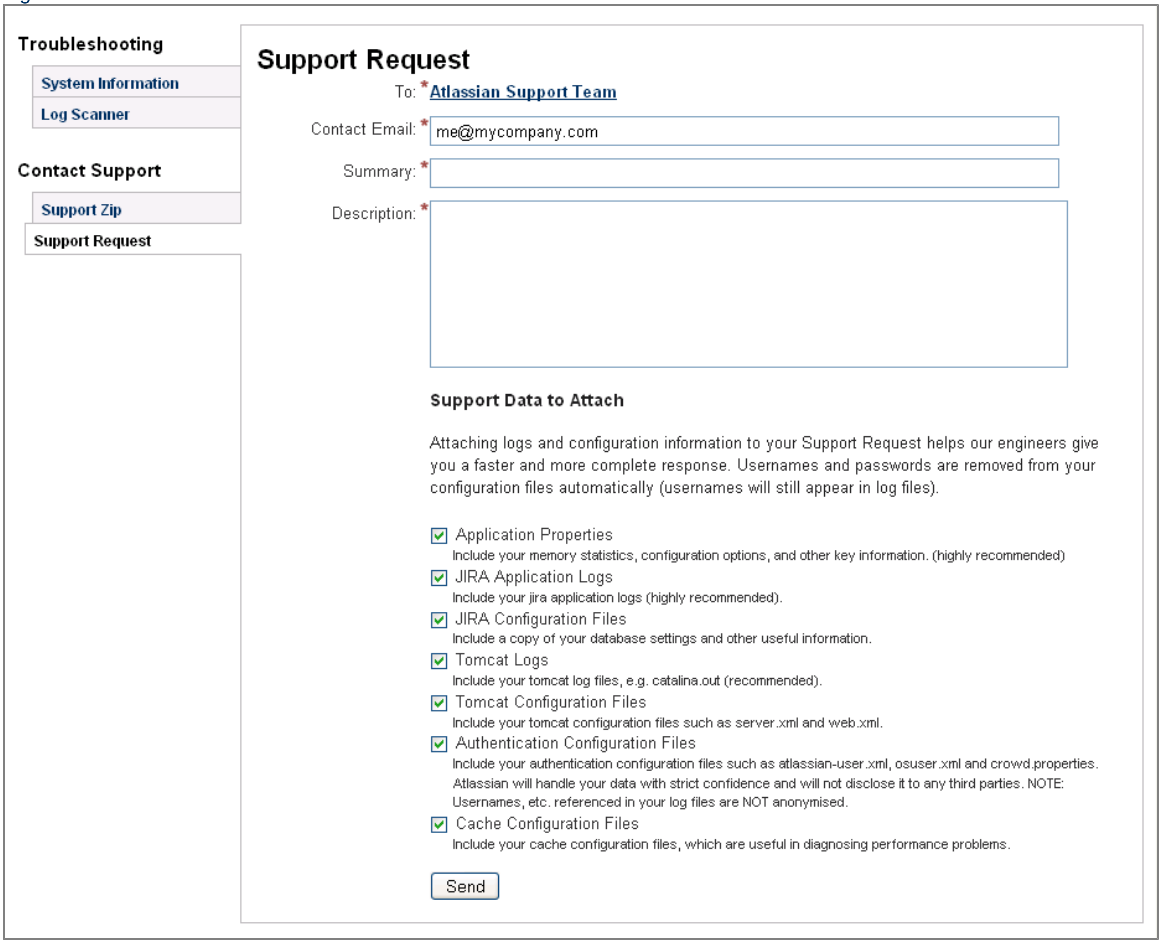
Looking for other helpful information? You can receive news, product information and code tips via our newsletter, blogs and forums. Stay in touch with us here.

Raising a Support Request

You can raise a support request either in JIRA or via the internet, as described below:

To raise a support request via your JIRA system

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title '**System**', click the '**Atlassian Support Tools**' link.
4. Click the '**Support Request**' tab. The '**Support Request**' form will be displayed:
   - Please provide as much information as possible, including any error messages that are appearing on the console or in the logs.



5. Once you have submitted your support request, you will receive email updates about its progress. You can also view the status of your support request by visiting the Atlassian Support System

OR:

To raise a support request via the internet

1. Please visit the Atlassian Support System and create a support request.
2. Please provide as much information as possible, including any error messages that are appearing on the console or in the logs. Please also mention the operating system, database and version of JIRA you are using.

Sometimes it is necessary to adjust JIRA's logging levels to get a more detailed error message or a stack trace. Please see the logging section of the documentation for information on how to do this.

Creating a Support Zip

If you have created a support request via the internet, you may want to create a 'Support Zip' (which contains information about your JIRA system) and attach it to the support request. This will assist our support engineers in troubleshooting the issue.

To create a Support Zip:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title '**System**', click the '**Atlassian Support Tools**' link.
4. Click the '**Support Zip**' tab. The '**Support Zip**' page will be displayed.
5. Leaving all the boxes ticked, click the '**Create**' button at the bottom of the screen.

You can now go to your support request and attach the Support Zip.

Configuring the Layout and Design

The following pages contain information on configuring the layout and design of JIRA:

- Customising the Look and Feel
- Choosing a Default Language
- Configuring the Default Issue Navigator
- Configuring the Default Dashboard
- Configuring an Announcement Banner
- Enabling Logout Confirmation

You may also wish to extend JIRA's functionality by installing and/or enabling new plugins. Read the Managing JIRA's Plugins documentation for further information.

Customising the Look and Feel

You can easily customise JIRA's look and feel to suit your needs:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title **'Global Settings'**, click **'Look and Feel'**.
4. The **'Look and Feel Configuration'** page will be displayed as follows:
   Screenshot: Look and Feel configuration (click to view larger image)
   
5. To edit the logo, colours or time format, click the **'Edit Configuration'** link at the bottom of the page. To reset to the default look and feel of JIRA, simply click the **'Reset Default'** button.

Here is a list of the different configuration options available, and what they do.

- Logo
- Colours
- Gadget Colours
- Date/Time Formats

Logo

The logo appears in the top left corner of every JIRA page. You can easily replace the default JIRA logo with an image of your choice.

Option	Explanation
URL	This URL points to the absolute or relative path of the image that you wish to display at the top of the page. If the URL begins with **'http://'** or **'https://'** then the URL is treated as an absolute URL. Otherwise it will be treated as a relative URL, and the image will have to be packaged in the war file when you build JIRA.

Preview	When an image is selected, a preview will be shown here.
Logo Width	The width of the image, usually in pixels. You can use any format that is valid in an image tag. e.g. *'100px', '80%'*
Logo Height	The height of the image, usually in pixels. You can use any format that is valid in an image tag. e.g. *'25px', '30%'*

If the JIRA Logo isn't appearing after changing it to a custom one, ensure that the URL specified has the correct case. The value is case-sensitive. Try copying and pasting the URL into a browser and check that it appears.

Colours

The following options control the appearance of the entire JIRA user interface.

Please note:

- The colours you specify for each of the following options can be anything that is valid for both a font tag, and a stylesheet's 'color:' attribute.
- When specifying a colour, you can use the pop-up colour chooser, or specify your own (eg. *'#FFFFFF', 'red').*
- To return to the original colour scheme, just clear any values that you have set.

Option	Explanation
Header Background Colour	The background colour of the top bar (the one that includes the image).
Header Highlight Background Colour	The background colour of the text that sits inside the top bar, when selected or when the mouse hovers over it.
Header Text Colour	The colour of the text that sits inside the top bar (such as your user name when you are logged in).
Header Text Highlight Colour	The colour of the text that sits inside the top bar, when selected or when the mouse hovers over it.
Header Separator Colour	The colour of the horizontal line between the top bar and the navigation bar.
Navigation Bar Background Colour	The background colour of the bar that contains the links to 'Dashboards', 'Projects', etc.
Navigation Bar Text Colour	The text color of the links in the menu bar (e.g. 'Dashboards').
Navigation Bar Separator Colour	The colour of the vertical dotted line between each menu item and its drop-down symbol (triangle).
Link Colour	The colour of the text links on any JIRA page.
Link Active Colour	The colour of the text links on any JIRA page, when selected.
Heading Colour	The colour of the text headings on any JIRA page.

Gadget Colours

These seven colours are the seven options from which users can select when changing the colour of a gadget's frame on their JIRA dashboard. Colour 1 is the default frame colour for newly-added gadgets.

Please note:

- The colours you specify for each of the eight options can be anything that is valid for both a font tag, and a stylesheet's 'color:' attribute.
- When specifying a colour, you can use the pop-up colour chooser, or specify your own (eg. '#FFFFFF', 'red').
- To return to the original colour scheme, just clear any values that you have set.

Date/Time Formats

These time and date formats are used throughout JIRA. To specify them, use the format described at http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html.

When you are not in edit mode, the examples in the rightmost column show you how the various formats will appear.

To set the date picker format, see 'Advanced JIRA configuration with jira-application.properties'. Here are some example configurations for U.S time:

Preferred Date	Configuration in jira-application.properties

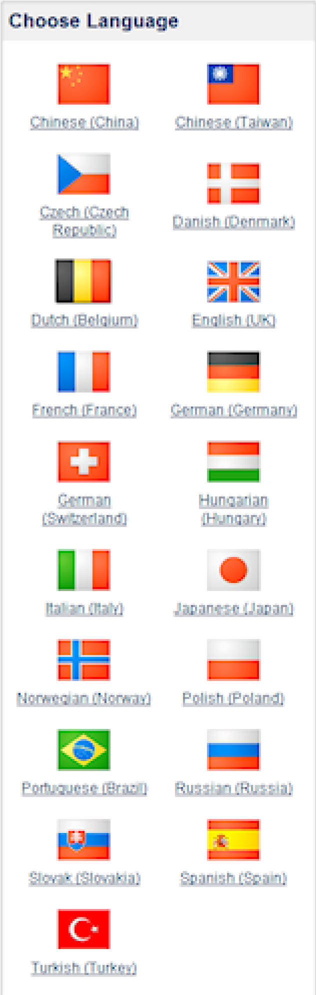
Oct/1/10	jira.date.picker.java.format = MMM/d/yy jira.date.picker.javascript.format = %b/%e/%y
10/05/10	jira.date.picker.java.format = MM/dd/yy jira.date.picker.javascript.format = %m/%d/%y
Jan 5, 2010	jira.date.picker.java.format = MMM dd, yyyy jira.date.picker.javascript.format = %b %d, %Y
10/05/2010	jira.date.picker.java.format = MM/dd/yyyy jira.date.picker.javascript.format = %m/%d/%Y

Choosing a Default Language

Overview

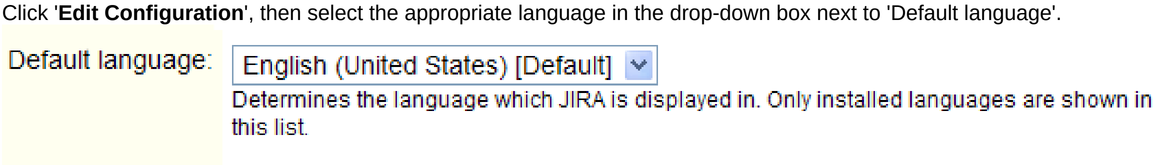
Most user-visible pages in JIRA are now internationalised. Chinese, Czech, Danish, English, French, German, Italian, Norweigian, Polish, Portuguese (Brazilian), Russian, Japanese, Slovak and Spanish translations are available (at time of writing), with more in development.

When JIRA is first installed, the default language may be chosen by clicking on a flag:



Changing the default language

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click '**General Configuration**' (under the 'Global Settings' subheading on the left).
4. Click '**Edit Configuration**', then select the appropriate language in the drop-down box next to 'Default language'.



Any additional languages you have installed will appear in the list. See Translating JIRA.

Per-user language selection

Individual users can choose their own language, which will override the default language (see above).

Overriding the default translations of Issue Types, Resolutions, Statuses and Priorities

Should you wish, you can easily specify your own translations for the values of the following JIRA issue fields:

- Issue Type
- Priority
- Status
- Resolution

Your specified translations will override the values specified in the JIRA translation.

Configuring the Default Issue Navigator

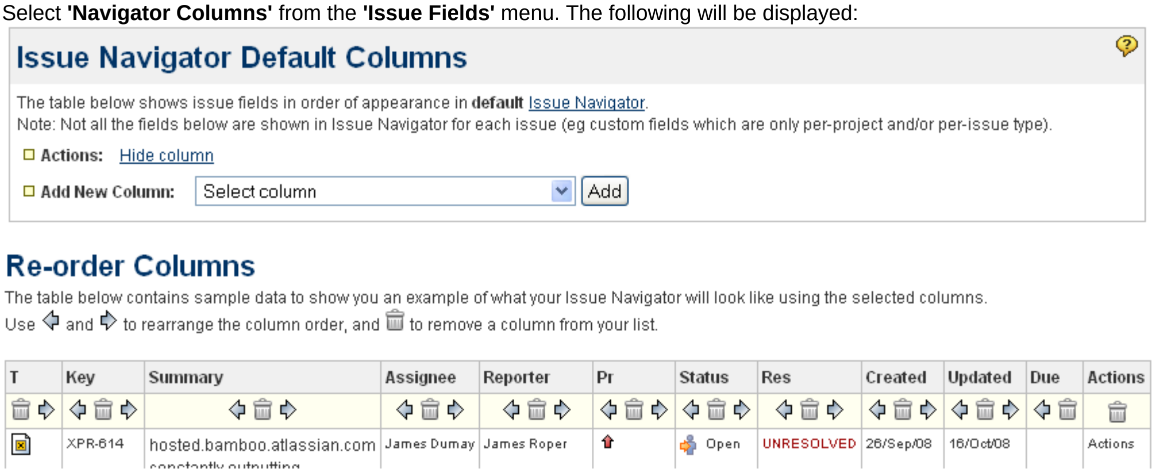
The Issue Navigator is used within JIRA to find and filter issues, and to display the search results in various formats ('views'). It is possible to select which issue fields will be displayed as columns in the Issue Navigator.

JIRA **administrators** can configure which columns appear in the Issue Navigator by default, for all users that do not have their personal navigator columns configured. Each authenticated JIRA **user** can override these defaults by configuring their own Issue Navigator columns to fit their needs. Note that only users who can see at least one issue in the JIRA system are able to configure Issue Navigator columns.

> JIRA administrators can also select which views are available in the JIRA system, as views are configurable via plugins.

Configuring the Default Issue Navigator Columns

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **'Navigator Columns'** from the **'Issue Fields'** menu. The following will be displayed:



- **To move a column left or right,** click on the left-arrow or right-arrow icon that appears under the column's heading.
- **To remove a column from the list,** click the bin icon which appears under the column's heading.
- **To add a column to the list,** select the issue field name from the drop-down box titled **'Add New Column'** and click the **'Add'** button. The column will appear as the right-most column in the list. You can then position the column where desired by using the arrow icons.
- **To hide the 'Actions' column,** click the **'Hide Column'** link.
- If the column order has been modified from the defaults, users can restore the global defaults by clicking the **'Restore Defaults'** link (which will appear only if they have modified their Issue Navigator from the global defaults). When configuring the global defaults (only available to administrators), the link is called **'Restore System Defaults',** and when clicked restores the configuration that JIRA ships with by default.

Note:

- When configuring their personal Issue Navigator columns, a user can only see columns for issue fields that have not been hidden.
- It is possible to add any of the existing custom fields to the Issue Navigator column list. When configuring the columns a user can choose any custom field that they have permissions to see. That is, any custom field except those that are project-specific and apply only to a project that the user does not have permissions to browse. Some custom fields, even if selected as Issue Navigator columns, will not appear in the Issue Navigator for all issues. For example, project-specific custom fields will be shown only if the filter has been restricted to that project only. Issue type custom fields will only appear if the filter has been restricted to that issue type.
- When administrators are configuring default Issue Navigator columns, their permissions are ignored, so that they can add a

project-specific custom field from a project that they do not have permissions to browse. The field would never be actually shown to users that do not have permissions to see it.

Configuring the Default Dashboard

The default dashboard is the screen that all JIRA users see the first time they login. Any users who have not added any dashboard pages as favourites also see the default dashboard.

JIRA allows Administrators to configure the default dashboard. The gadgets on the default dashboard can be re-ordered, switched between the left and right columns, additional gadgets can be added, and some gadgets can be configured. The layout of the dashboard (e.g. number of columns) can also be configured.

All changes made to the default dashboard will also change the dashboards of all users currently using the default. However, gadgets that users do not have permissions to see will not be displayed to them. For example, the 'Administration' gadget, although it may exist in the default dashboard configuration, will not be visible to non-admin users.

> Gadgets are the information boxes on the Dashboard. JIRA comes pre-configured with a set of standard dashboard gadgets. It is also possible to develop custom gadgets and plug them into JIRA using its flexible plugin system.

Adding and Configuring Gadgets

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click the 'System Dashboard' link under 'Global Settings' on the left pane.
4. This will display the 'Configure System Dashboard' screen, which consists of two selectable areas listing the current gadgets.
    - To move the current gadgets to a different position on the default dashboard, simply drag-and-drop them.
    - To re-configure the existing gadgets, please see Changing the Look and Behaviour of a Gadget.
    - To choose a different layout for the default dashboard, please see Customising the Dashboard.

> JIRA's default dashboard is limited to only one dashboard page. However, users can add multiple pages to their own dashboards if they wish.

> By default, there is a limit of 20 gadgets per dashboard page. If you wish to raise this limit, edit the jira-application.properties file and set 'jira.dashboard.max.gadgets=20' to your preferred value. Then restart JIRA.

See Also

- Using Dashboard Gadgets
- Adding a Gadget to the Directory
- Subscribing to Another Application's Gadgets

Using Dashboard Gadgets

On this page:

- About gadgets
- Preinstalled gadgets
- Extension gadgets
- Creating new gadgets

About gadgets

JIRA provides the ability to display summary information about project/issue data on the dashboard, through the use of 'gadgets'. Each gadget can be configured to display project and issue details relevant to particular users. Gadgets can be added to the dashboard — providing a central location for quick access to this information.

> **Adding Atlassian gadgets to external websites**
> You can also add Atlassian gadgets to compatible external websites, like iGoogle. For instructions on how to do this, please refer to Adding an Atlassian Gadget to iGoogle and Other Web Sites.

Preinstalled gadgets

JIRA provides a set of standard gadgets out-of-the-box:

Gadget	Description

Activity Stream Gadget	The **Activity Stream** gadget displays a summary of your recent activity.
Administration Gadget	The **Administration** gadget displays quick links to administrative functions.
Assigned To Me Gadget	The **Assigned To Me** gadget displays all open issues in all projects assigned to the current user viewing the dashboard.
Average Age Gadget	The **Average Age** gadget displays a bar chart showing the average number of days that issues have been unresolved.
Bamboo Charts Gadget *	The **Bamboo Charts** gadget displays various charts and plan statistics from a particular Bamboo server.
Bamboo Plan Summary Chart Gadget *	The **Bamboo Plan Summary** gadget displays a graphical summary of a build plan.
Bamboo Plans Gadget *	The **Bamboo Plans** gadget displays a list of all plans on a Bamboo server, and each plan's current status.
Bugzilla ID Search Gadget	The **Bugzilla ID Search** gadget allows the user to search all JIRA issues for references to Bugzilla IDs.
Calendar Gadget *	The **Issue Calendar** gadget shows issues and versions in a calendar format based on their due date. Calendars can be based on an issue filter or on a project.
Clover Coverage Gadget *	The **Clover Coverage** gadget displays the Clover coverage of plans from a particular Bamboo server.
Created vs Resolved Gadget	The **Created vs Resolved** gadget displays a difference chart showing the issues created vs resolved over a given period.
Crucible Charts Gadget *	The **Crucible Charts** gadget displays various charts showing statistical summaries of code reviews.
Favourite Filters Gadget	The **Favourite Filters** gadget displays a list of all the issue filters that have currently been added by you as a favourite filter.
Filter Results Gadget	The **Filter Results** gadget displays the results of a specified issue filter.
FishEye Charts Gadget *	The **FishEye Charts** gadget displays two charts showing showing statistics about a given sourcecode repository.
FishEye Recent Changesets Gadget *	The **FishEye Recent Changesets** gadget displays a number of recent changesets from a FishEye repository.
In Progress Gadget	The **In Progress** gadget displays all issues that are currently in progress and assigned to the current user viewing the dashboard.
Introduction Gadget	The **Introduction** gadget displays a configurable introduction message on the dashboard.
Issue Statistics Gadget	The **Issue Statistics** gadget displays the collection of issues returned from a specified filter, broken down by a specified field.
JIRA: News Gadget	The **JIRA:News** gadget displays recent Atlassian news about JIRA.
Pie Chart Gadget	The **Pie Chart** gadget displays issues from a project or issue filter, grouped by a statistic type, in pie-chart format. The issues can be grouped by any statistic type (e.g. Status, Priority, Assignee, etc).
Projects Gadget	The **Projects** gadget provides information and various filters related to a specified project(s).
Quick Links Gadget	The **Quick Links** gadget displays a number of useful links to issues associated with the current user.
Recently Created Issues Gadget	The **Recently Created Issues** gadget displays a bar chart showing the rate at which issues are being created, as well as how many of those created issues are resolved.
Resolution Time Gadget	The **Resolution Time** gadget displays a bar chart showing the average resolution time (in days) of resolved issues.
Road Map Gadget	The **Road Map** gadget shows versions which are due for release within a specified period of time, and a summary of progress made towards completing the issues in those versions.

Text Gadget *	The **Text** gadget displays a configurable HTML text on the dashboard.
Time Since Issues Gadget	The **Time Since Issues** gadget displays a bar chart showing the number of issues that something has happened to within a given time period. The 'something has happened' is based on a date field that you choose, such as 'Created', 'Updated', 'Due', 'Resolved' or a custom field.
Two Dimensional Filter Statistics Gadget	The **Two Dimensional Filter Statistics** gadget displays statistical data based on a specified filter in a configurable table format.
Voted Gadget	The **Voted Issues** gadget shows issues for which you have voted.
Watched Gadget	The **Watched Issues** gadget shows issues which you are watching.

See the big list of all Atlassian gadgets for more ideas.

*This gadget will only be available if you have installed/configured the relevant plugin.

Extension gadgets

Other gadgets are available as plugins on the JIRA Extensions site. These plugins include:

- Calendar plugin
- Timesheet plugin

Should you wish to you use these plugins, you need to first install them (using the instructions provided with each plugin) then enable them.

Creating new gadgets

New gadgets can be created by writing an XML descriptor file, packaged as an Atlassian plugin. See Writing an Atlassian Gadget for more information.

RELATED TOPICS

The big list of Atlassian gadgets

Adding a Gadget to the Directory

On this page:

- Overview
- Adding a Gadget that is Not a Plugin
- Adding a Gadget that must be Installed as a Plugin

Overview

The JIRA gadget directory displays all the gadgets that are available for JIRA users to add to their dashboard.

You need to have administrator privileges to add a gadget to the directory. If you have permission to add gadgets to and remove gadgets from the directory itself, you will see the '**Add Gadget to Directory**' and '**Remove**' buttons on the 'Add Gadget' screen, as shown below.

> **Security implications**
> Add only gadgets from sources that you trust. Gadgets can allow unwanted or malicious code onto your web page and into your application. A gadget specification is just a URL. The functionality it provides can change at any time.

There are two types of gadgets: those that must be installed as plugins, and those that can be added as simple gadget URLs.

Adding a Gadget that is Not a Plugin

If the gadget is hosted on another server and can be added to the directory as a simple URL, then you can simply add it via your dashboard's 'Add Gadget' option.

To add a gadget to your directory,

1. First you need to find the URL for the gadget's XML specification file. Gadget authors and publishers make their gadget URLs available in different ways. Below are the instructions for an Atlassian gadget and a Google gadget.

    - Follow the steps below if you need to find the URL for a gadget that is published by an Atlassian application, such as JIRA or Confluence:

      A gadget's URL points to the gadget's XML specification file. Gadget URLs are shown on the '**Add Gadget**' screen. In general, a gadget's URL looks something like this:

      If the gadget is supplied by a plugin, the URL will have this format:
      `http://my-app.my-server.com:port/rest/gadgets/1.0/g/my-plugin.key:my-gadget/my-path`

      For example:
      `http://mycompany.com/jira/rest/gadgets/1.0/g/com.atlassian.streams.streams-jira-plu`

      To find a gadget's URL in JIRA:

        - Go to your dashboard by clicking the '**Dashboards**' link at the top left of the screen.
        - Click '**Add Gadget**' to see the list of gadgets in the directory.
        - Find the gadget you want, using one or more of the following tools:
            - Use the scroll bar on the right to move up and down the list of gadgets.
            - Select a category in the left-hand panel to display only gadgets in that category.
            - Start typing a key word for your gadget in the '**Search**' textbox. The list of gadgets will change as you type, showing only gadgets that match your search term.
        - Right-click the '**Gadget URL**' link for that gadget and copy the gadget's URL into your clipboard.

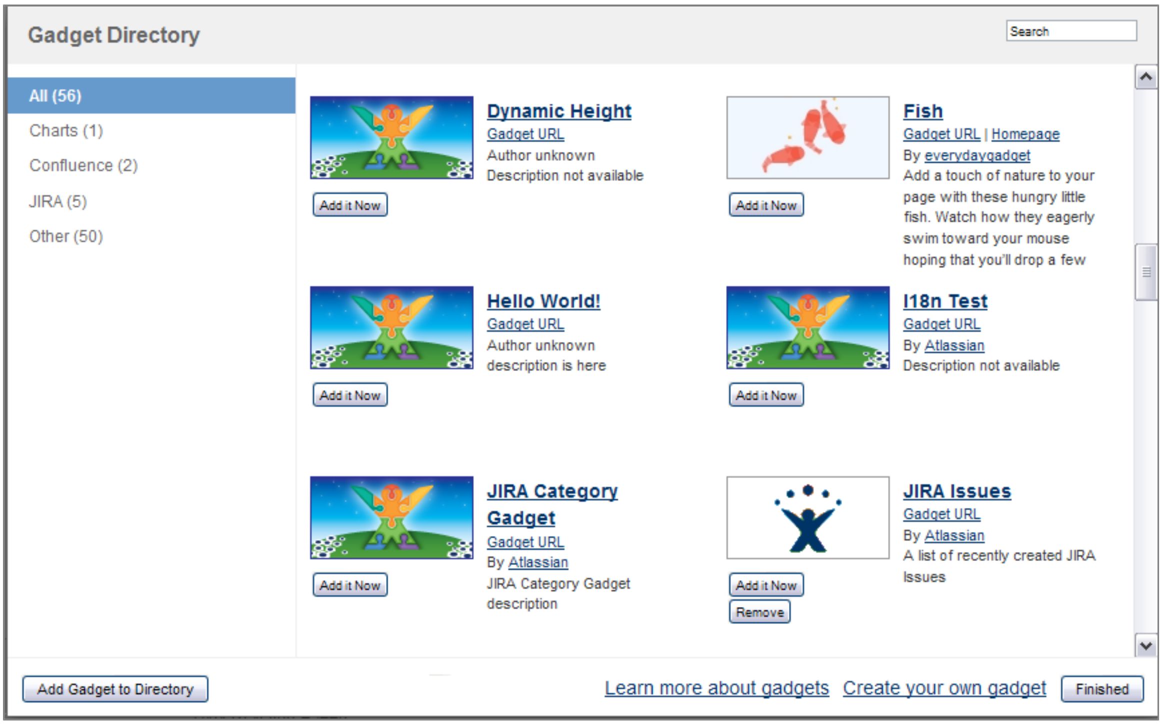
      To find a gadget's URL in Confluence:

        - Open the '**Browse**' menu and click '**Confluence Gadgets**' to see the list of available Confluence gadgets.
        - Find the gadget you want.
        - Right-click the '**Gadget URL**' link for that gadget and copy the gadget's URL into your clipboard.

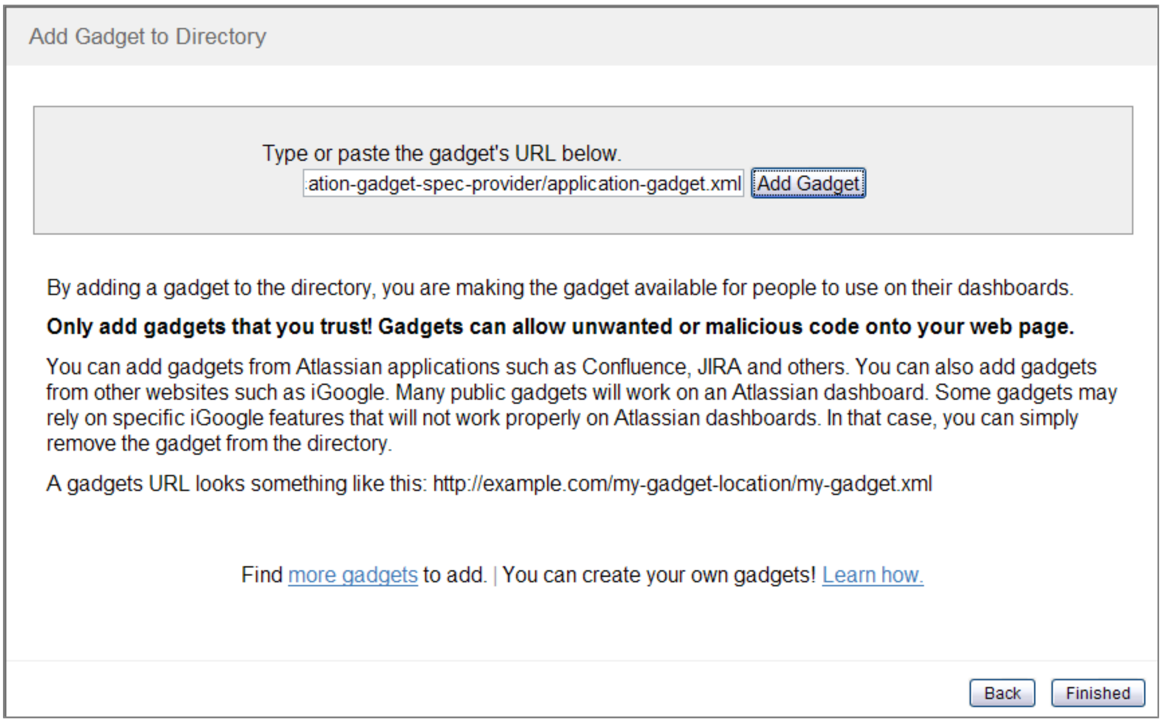
    - Follow the steps below if you need to find the URL for a Google gadget:
        a. Go to the Google gadget directory. (You can also get there by clicking 'Add Stuff' from your iGoogle home page.)
        b. Search for the gadget you want.
        c. Click the link on the gadget to open its home page.
        d. Find the '**View source**' link near the bottom right of the page. Right-click the link and copy its location to your clipboard. This is the gadget's URL.

2. Now you can add the gadget to your directory. Go to the dashboard by clicking the '**Dashboard**' link or the '**Home**' link at the top left of the screen.
3. The dashboard will appear. Click '**Add Gadget**'.
4. The '**Add Gadget**' screen appears, showing the list of gadgets in your directory. See screenshot 1 below. Click '**Add Gadget to Directory**'.
   You will only see this button if you have administrator permissions for your dashboard.
5. The '**Add Gadget to Directory**' screen appears. See screenshot 2 below. Type or paste the gadget URL into the text box.
6. Click '**Add Gadget**'.
7. The gadget appears in your gadget directory. (It will be highlighted for a short time, so that you can see it easily.)

Screenshot 1: Gadget directory with 'Add Gadget to Directory' button



Screenshot 2: Adding a gadget to the directory



Adding a Gadget that must be Installed as a Plugin

If the gadget must be installed as a plugin, you cannot add it via the gadget directory user interface.

Instead, you will need to follow the instructions for adding a plugin, as described in Managing JIRA's Plugins.

Once you have installed your plugin, the gadget will automatically appear in the directory.

RELATED TOPICS

The big list of Atlassian gadgets

Subscribing to Another Application's Gadgets

On this page:

- Subscribing to Another Application's Gadgets

> **Security implications**
> Add only gadgets from sources that you trust. Gadgets can allow unwanted or malicious code onto your web page and into your application. A gadget specification is just a URL. The functionality it provides can change at any time.

Subscribing to Another Application's Gadgets

If you have administrator privileges, you can configure your application to subscribe to gadgets from other Atlassian applications. This feature allows administrators to make all the gadgets from one application available in another application, without having to enable each gadget individually via the gadget URL.

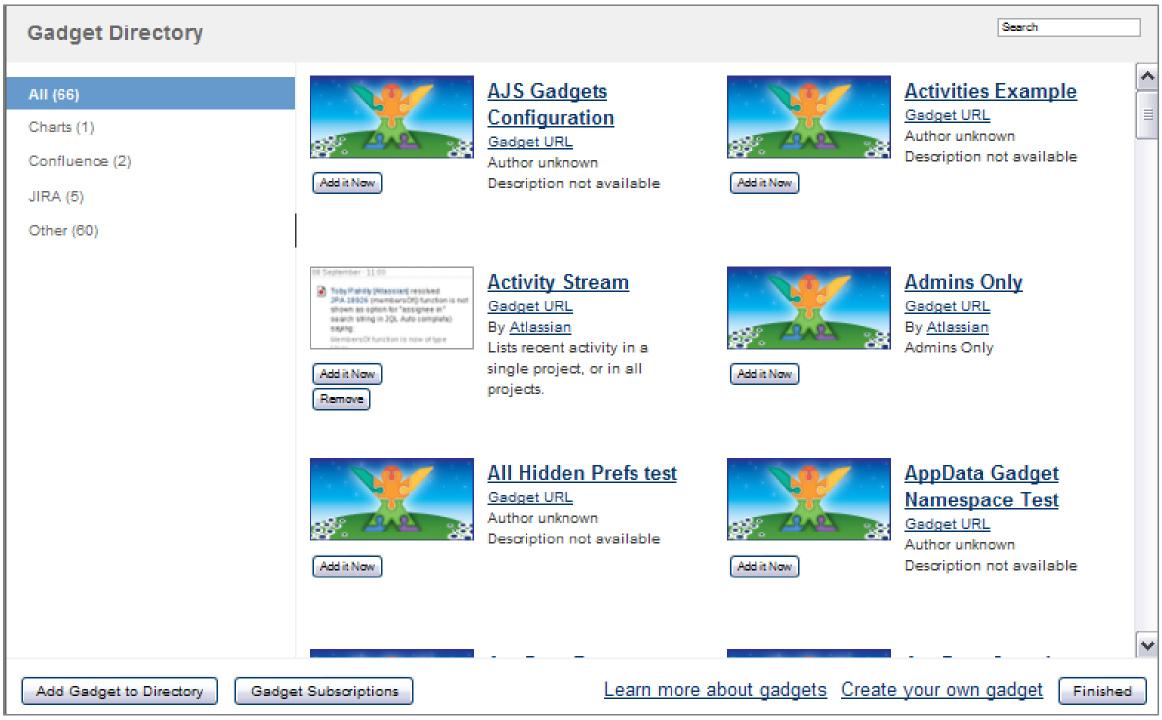
To make use of this feature, you will need two or more applications that support the feature.

The gadgets included are those provided by the other application or via plugins installed into that application. They do *not* include external gadgets that the other application has added to its directory.

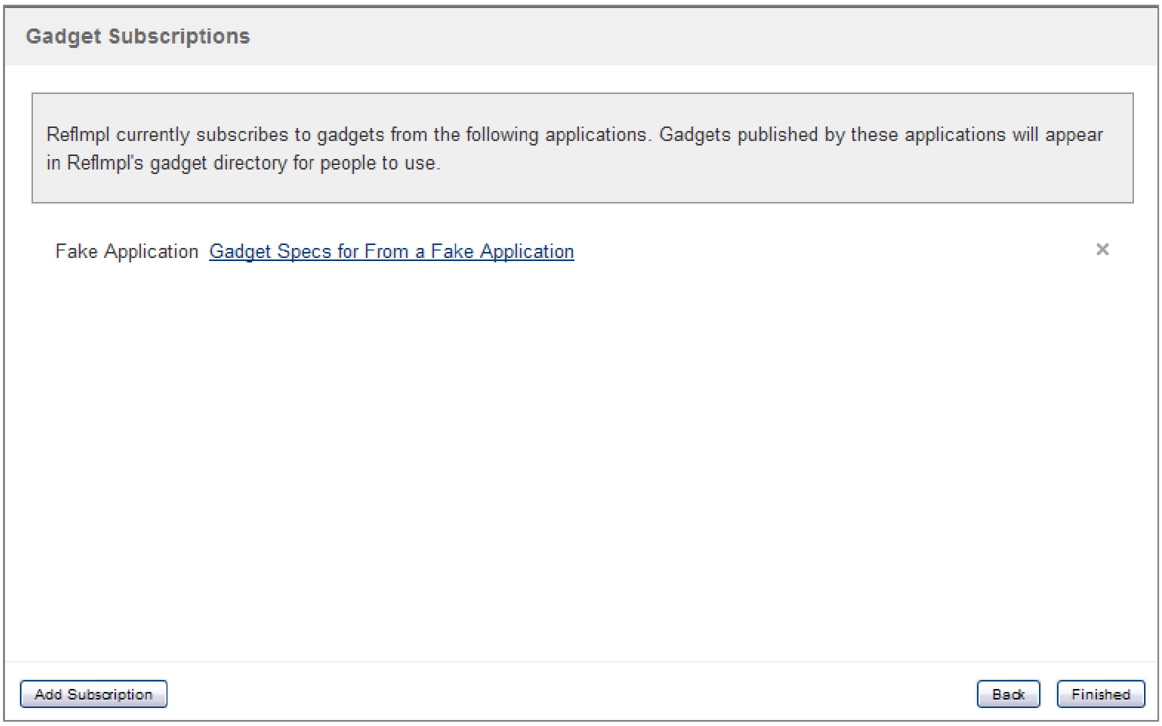
To subscribe to gadgets from another application,

1. Go to the dashboard by clicking the '**Dashboard**' link or the '**Home**' link at the top left of the screen.
2. The dashboard appears. Click '**Add Gadget**'.
3. The '**Add Gadget**' screen appears, showing the list of gadgets in your directory. See the gadget directory screenshot below. Click '**Gadget Subscriptions**'.
   You will only see this button if you have administrator permissions for your dashboard, and if your application supports gadget subscriptions.
4. The '**Gadget Subscriptions**' screen appears, showing the applications to which your application already subscribes. See the subscriptions screenshot below. Click '**Add Subscription**'.
5. The '**Add Subscription**' screen appears. See the screenshot below. Enter the base URL of the application you want to subscribe to. For example, `http://example.com/jira` or `http://example.com/confluence`.
6. Click '**Finished**' to add the subscription.

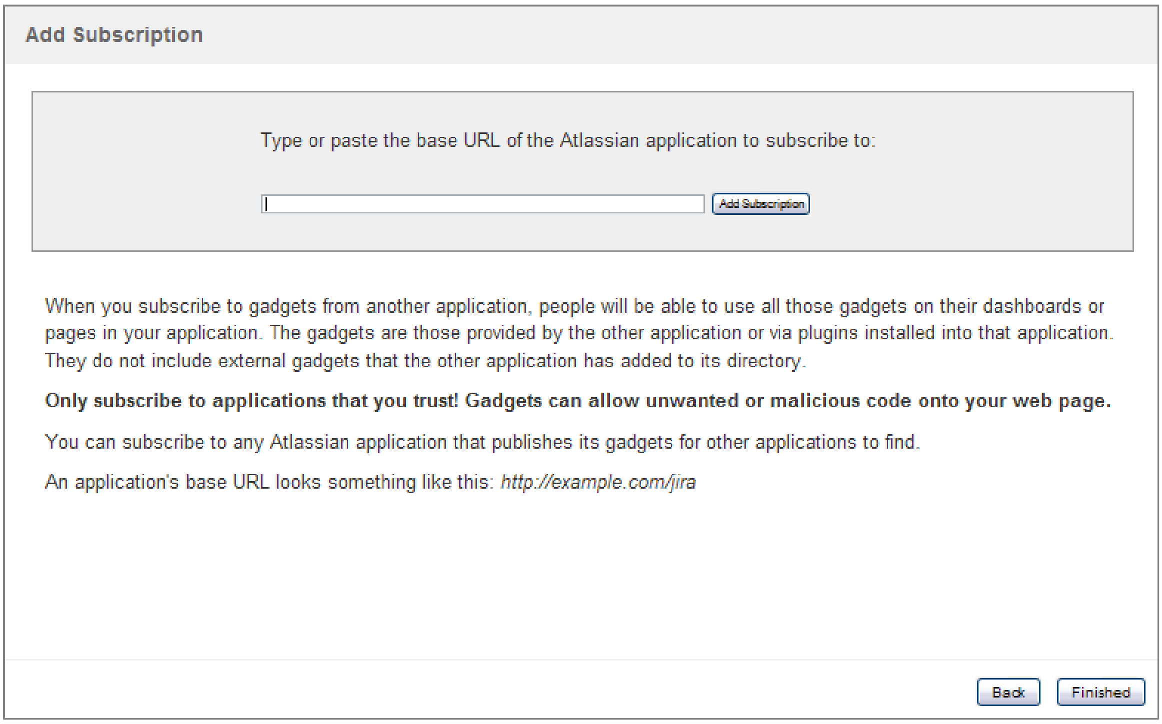
Screenshot 1: Gadget directory with 'Gadget Subscriptions' button



Screenshot 2: List of existing gadget subscriptions



Screenshot 3: Adding a gadget subscription



RELATED TOPICS

The big list of Atlassian gadgets

Configuring an Announcement Banner

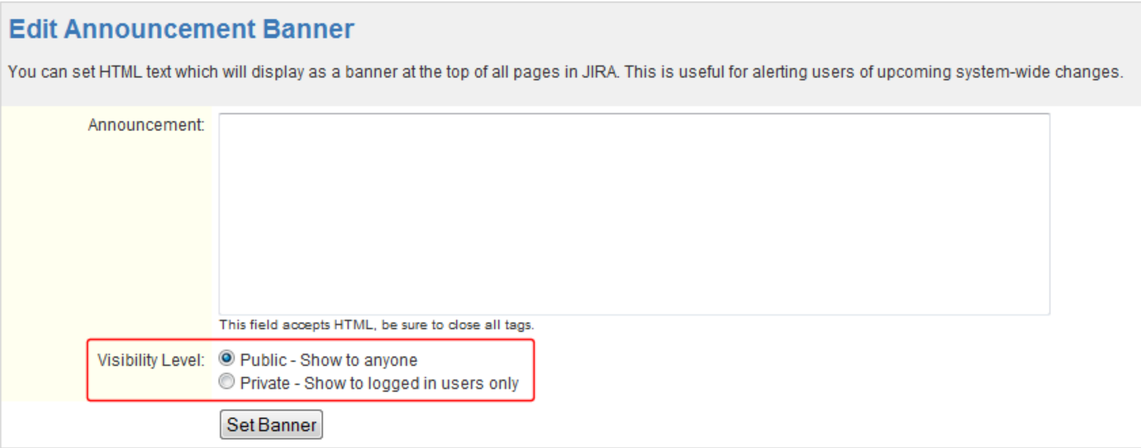
Administrators can configure an **announcement banner** to display pertinent information on all JIRA pages. The banner can be used to relate important information (e.g. scheduled server maintenance, approaching project deadlines, etc.) to all users. Further, the banner visibility level can be configured to display to all users or just logged-in users.

The banner can be configured to contain HTML text.

Configure Announcement Banner

1. Navigate to the JIRA **Administration** section.
2. Select the **Announcement Banner** under the **Options & Settings** sub-menu.
3. Enter the required text in the **Announcement** field.
4. Select the required visibility level for the banner.
5. Click **Set Banner.**

Depending on the visibilty level selected, the banner will become visible throughout JIRA.



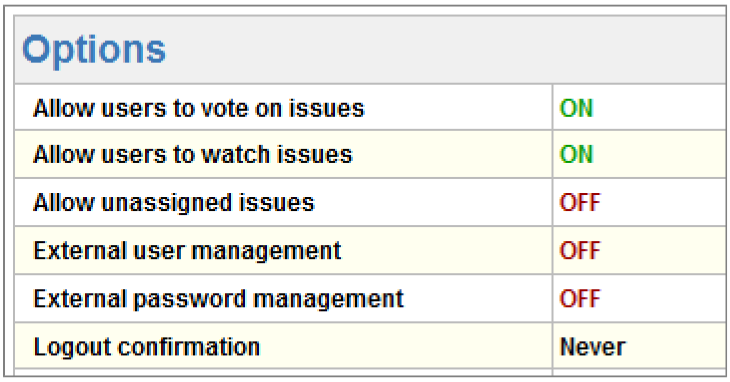
Banner Visibility Mode

The announcement banner visibility level can be configured to specify to whom the banner will be displayed. There are two modes:

- **Public** — the banner is visible to everyone
- **Private** — the banner is visible to logged-in users **only**

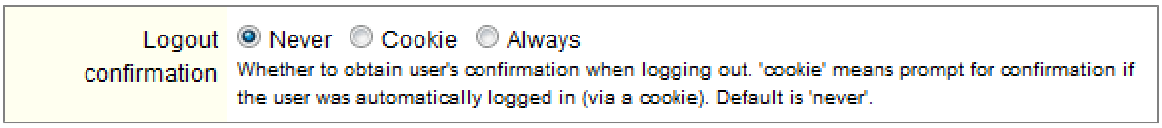
Enabling Logout Confirmation

Administrators can configure JIRA to prompt users with a confirmation before logging them out. You can adjust this setting by going to the Administration page and then clicking the '**General Configuration**' link found under '**Global Settings**' on the left pane.



Options	
Allow users to vote on issues	ON
Allow users to watch issues	ON
Allow unassigned issues	OFF
External user management	OFF
External password management	OFF
Logout confirmation	Never

As shown above, JIRA will never prompt users to confirm logging out by default. To change this, click on '**Edit Configuration**'.



The **Never** and **Always** settings are self-explanatory. When set to **Cookie**, your JIRA users will only be prompted if they have logged in using a cookie (i.e. by selecting the '**Remember my login on this computer**' check box before they click the '**Log In**' button).

User and Group Management

The following pages contain information about user and group management in JIRA:

- Configuring User Directories
- Enabling Public Signup and CAPTCHA

- Managing Users
- Managing Groups
- Managing Project Roles
- Migrating User Groups to Project Roles
- Viewing User Sessions
- Clearing 'Remember my login' Tokens

Configuring User Directories

A user directory is a place where you store information about users and groups. User information includes the person's full name, username, password, email address and other personal information. Group information includes the name of the group, the users that belong to the group, and possibly groups that belong to other groups.

The **internal** directory stores user and group information in the JIRA database. You can also connect to **external** user directories, and to Atlassian **Crowd** and **JIRA** as directory managers.

On this page:

- Configuring User Directories in JIRA
- Connecting to a Directory
- Enabling, Disabling and Removing Directories

Configuring User Directories in JIRA

To configure your user directories:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **'User Directories'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.

Connecting to a Directory

You can add the following types of directory servers and directory managers:

- JIRA's internal directory. See Configuring the Internal Directory.
- Microsoft Active Directory. See Connecting to an LDAP Directory.
- Various other LDAP directory servers. See Connecting to an LDAP Directory.
- An LDAP directory for delegated authentication. See Connecting to an Internal Directory with LDAP Authentication.
- Atlassian Crowd. See Connecting to Crowd or Another JIRA Server for User Management.
- Another JIRA server. See Connecting to Crowd or Another JIRA Server for User Management.

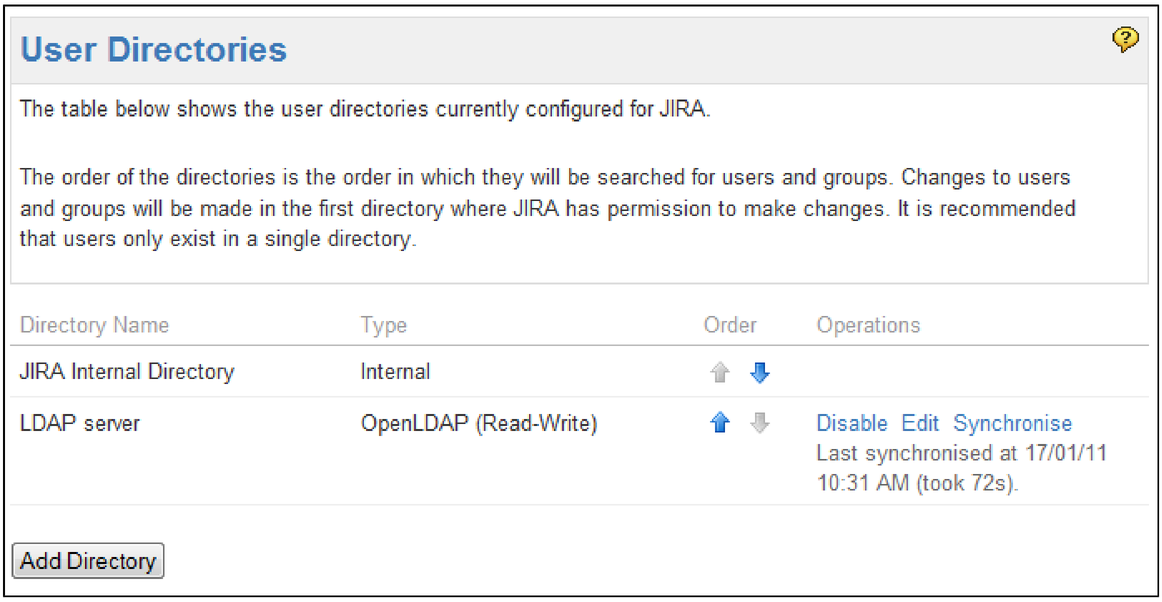
You can add as many external user directories as you need. Note that you can define the **order** of the directories. This determines which directory JIRA will search first, when looking for user and group information. See Managing Multiple Directories.

Enabling, Disabling and Removing Directories

You can enable or disable a directory at any time. If you disable a directory, your configuration details will remain but the application will not recognise the users and groups in that directory.

You have to disable a directory before you can remove it. Removing a directory will remove the details from the database.

Screenshot: Configuring user directories



RELATED TOPICS

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

- User and Group Management

Configuring the Internal Directory

The internal directory stores user and group information in the JIRA database.

Overview

The internal directory is enabled by default at installation. When you create the first administrator during the setup procedure, that administrator's username and other details are stored in the internal directory.

If needed, you can configure one or more additional user directories. This is useful if you want to grant access to users and groups that are stored in a corporate directory or other directory server.

On this page:

- Overview
- Settings
- Diagram of Possible Configuration

Settings

Setting	Description
Enable Nested Groups	Enable or disable support for nested groups. When nested groups are enabled, you can define a group as a member of another group. If you are using groups to manage permissions, you can create nested groups to allow inheritance of permissions from one group to its sub-groups.

Diagram of Possible Configuration

Full Size

Diagram above: JIRA using its internal directory for user management.

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Connecting to an LDAP Directory

You can connect your JIRA application to an LDAP directory for authentication, user and group management.

Overview

An LDAP directory is a collection of data about users and groups. LDAP (Lightweight Directory Access Protocol) is an Internet protocol that web applications can use to look up information about those users and groups from the LDAP server.

We provide built-in connectors for the most popular LDAP directory servers:

- Microsoft Active Directory
- Apache Directory Server (ApacheDS)
- Apple Open Directory
- Fedora Directory Server
- Novell eDirectory
- OpenDS
- OpenLDAP
- OpenLDAP Using Posix Schema
- Posix Schema for LDAP
- Sun Directory Server Enterprise Edition (DSEE)
- A generic LDAP directory server

When to use this option: Connecting to an LDAP directory server is useful if your users and groups are stored in a corporate directory. When configuring the directory, you can choose to make it read only, read only with local groups, or read/write. If you choose read/write, any changes made to user and group information in the application will also update the LDAP directory.

On this page:

- Overview
- Connecting to an LDAP Directory in JIRA
- Server Settings
- Schema Settings
- Permission Settings
- Advanced Settings
- User Schema Settings
- Group Schema Settings
- Membership Schema Settings
- Diagrams of Some Possible Configurations

Connecting to an LDAP Directory in JIRA

To connect JIRA to an LDAP directory:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **'User Directories'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
4. **Add** a directory and select one of these types:
    - '**Microsoft Active Directory**' – This option provides a quick way to select AD, because it is the most popular LDAP directory type.
    - '**LDAP**' – You will be able to choose a specific LDAP directory type on the next screen.
5. Enter the values for the settings, as described below.
6. Save the directory settings.
7. Define the **directory order** by clicking the blue up- and down-arrows next to each directory on the '**User Directories**' screen.

    Here is a summary of how the directory order affects the processing:

    - The order of the directories is the order in which they will be searched for users and groups.
    - Changes to users and groups will be made only in the first directory where the application has permission to make changes.

    For details see Managing Multiple Directories.

Server Settings

Setting	Description
Name	Enter a meaningful name to help you identify the LDAP directory server. Examples: • `Example Company Staff Directory` • `Example Company Corporate LDAP`
Directory Type	Select the type of LDAP directory that you will connect to. If you are adding a new LDAP connection, the value you select here will determine the default values for many of the options on the rest of screen. Examples: • `Microsoft Active Directory` • `OpenDS` • And more.
Hostname	The host name of your directory server. Examples: • `ad.example.com` • `ldap.example.com` • `opends.example.com`
Port	The port on which your directory server is listening. Examples: • `389` • `10389` • `636` (for example, for SSL)
Use SSL	Tick this check box if the connection to the directory server is an SSL (Secure Sockets Layer) connection. Note that you will need to configure an SSL certificate in order to use this setting.
Username	The distinguished name of the user that the application will use when connecting to the directory server. Examples: • `cn=administrator,cn=users,dc=ad,dc=example,dc=com` • `cn=user,dc=domain,dc=name` • `user@domain.name`
Password	The password of the user specified above.

Schema Settings

Setting	Description
Base DN	The root distinguished name (DN) to use when running queries against the directory server. Examples: • `o=example,c=com` • `cn=users,dc=ad,dc=example,dc=com` • For Microsoft Active Directory, specify the base DN in the following format: `dc=domain1,dc=local`. You will need to replace the `domain1` and `local` for your specific configuration. Microsoft Server provides a tool called `ldp.exe` which is useful for finding out and configuring the the LDAP structure of your server.
Additional User DN	This value is used in addition to the base DN when searching and loading users. If no value is supplied, the subtree search will start from the base DN. Example: • `ou=Users`
Additional Group DN	This value is used in addition to the base DN when searching and loading groups. If no value is supplied, the subtree search will start from the base DN. Example: • `ou=Groups`

Permission Settings

Setting	Description
Read Only	LDAP users, groups and memberships are retrieved from your directory server and can only be modified via your directory server. You cannot modify LDAP users, groups or memberships via the application administration screens.

Read Only, with Local Groups	LDAP users, groups and memberships are retrieved from your directory server and can only be modified via your directory server. You cannot modify LDAP users, groups or memberships via the application administration screens. However, you can add groups to the internal directory and add LDAP users to those groups.
Read/Write	LDAP users, groups and memberships are retrieved from your directory server. When you modify a user, group or membership via the application administration screens, the changes will be applied directly to your LDAP directory server. Please ensure that the LDAP user specified for the application has modification permissions on your LDAP directory server.

Advanced Settings

Setting	Description
Enable Nested Groups	Enable or disable support for nested groups. Some directory servers allow you to define a group as a member of another group. Groups in such a structure are called 'nested groups'. If you are using groups to manage permissions, you can create nested groups to allow inheritance of permissions from one group to its sub-groups.
Use Paged Results	Enable or disable the use of the LDAP control extension for simple paging of search results. If paging is enabled, the search will retrieve sets of data rather than all of the search results at once. Enter the desired page size – that is, the maximum number of search results to be returned per page when paged results are enabled. The default is 1000 results.
Follow Referrals	Choose whether to allow the directory server to redirect requests to other servers. This option uses the node referral (JNDI lookup `java.naming.referral`) configuration setting. It is generally needed for Active Directory servers configured without proper DNS, to prevent a 'javax.naming.PartialResultException: Unprocessed Continuation Reference(s)' error.
Naive DN Matching	If your directory server will always return a consistent string representation of a DN, you can enable naive DN matching. Using naive DN matching will result in a significant performance improvement, so we recommend enabling it where possible. This setting determines how your application will compare DNs to determine if they are equal. • If this checkbox is ticked, the application will do a direct, case-insensitive, string comparison. This is the default and recommended setting for Active Directory, because Active Directory guarantees the format of DNs. • If this checkbox is not ticked, the application will parse the DN and then check the parsed version.
Synchronisation Interval (minutes)	Synchronisation is the process by which the application updates its internal store of user data to agree with the data on the directory server. The application will send a request to your directory server every x minutes, where 'x' is the number specified here. The default value is 60 minutes.
Read Timeout (seconds)	The time, in seconds, to wait for a response to be received. If there is no response within the specified time period, the read attempt will be aborted. A value of 0 (zero) means there is no limit. The default value is 120 seconds.
Search Timeout (seconds)	The time, in seconds, to wait for a response from a search operation. A value of 0 (zero) means there is no limit. The default value is 60 seconds.
Connection Timeout (seconds)	This setting affects two actions. The default value is 0. • The time to wait when getting a connection from the connection pool. A value of 0 (zero) means there is no limit, so wait indefinitely. • The time, in seconds, to wait when opening new server connections. A value of 0 (zero) means that the TCP network timeout will be used, which may be several minutes.

User Schema Settings

Setting	Description
User Object Class	This is the name of the class used for the LDAP user object. Example: • `user`
User Object Filter	The filter to use when searching user objects. Example: • `(&(objectCategory=Person)(sAMAccountName=*))`
User Name Attribute	The attribute field to use when loading the username. Examples: • `cn` • `sAMAccountName`

User Name RDN Attribute	The RDN (relative distinguished name) to use when loading the username. The DN for each LDAP entry is composed of two parts: the RDN and the location within the LDAP directory where the record resides. The RDN is the portion of your DN that is not related to the directory tree structure. Example: • `cn`
User First Name Attribute	The attribute field to use when loading the user's first name. Example: • `givenName`
User Last Name Attribute	The attribute field to use when loading the user's last name. Example: • `sn`
User Display Name Attribute	The attribute field to use when loading the user's full name. Example: • `displayName`
User Email Attribute	The attribute field to use when loading the user's email address. Example: • `mail`
User Password Attribute	The attribute field to use when loading a user's password. Example: • `unicodePwd`

Group Schema Settings

Setting	Description
Group Object Class	This is the name of the class used for the LDAP group object. Examples: • `groupOfUniqueNames` • `group`
Group Object Filter	The filter to use when searching group objects. Example: • `(objectCategory=Group)`
Group Name Attribute	The attribute field to use when loading the group's name. Example: • `cn`
Group Description Attribute	The attribute field to use when loading the group's description. Example: • `description`

Membership Schema Settings

Setting	Description
Group Members Attribute	The attribute field to use when loading the group's members. Example: • `member`
User Membership Attribute	The attribute field to use when loading the user's groups. Example: • `memberOf`

Use the User Membership Attribute, when finding the user's group membership	Put a tick in the checkbox if your directory server supports the group membership attribute on the user. (By default, this is the 'memberOf' attribute.) • If this checkbox is ticked, your application will use the group membership attribute on the user when **retrieving the members of a given group**. This will result in a more efficient retrieval. • If this checkbox is not ticked, your application will use the members attribute on the group ('member' by default) for the search. • If the 'Enable Nested Groups' checkbox is ticked, your application will ignore the 'Use memberOf Attribute on the User' option and will use the members attribute on the group for the search.
Use the User Membership Attribute, when finding the members of a group	Put a tick in the checkbox if your directory server supports the group membership attribute on the user. (By default, this is the 'memberOf' attribute.) • If this checkbox is ticked, your application will use the group membership attribute on the user when **retrieving the list of groups to which a given user belongs**. This will result in a more efficient search. • If this checkbox is not ticked, your application will use the members attribute on the group ('member' by default) for the search.

Diagrams of Some Possible Configurations

Full Size

Diagram above: JIRA connecting to an LDAP directory.

Full Size

Diagram above: JIRA connecting to an LDAP directory with permissions set to read only and local groups.

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
  - Configuring the LDAP Connection Pool
  - Configuring an SSL Connection to Active Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Configuring the LDAP Connection Pool

When connection pooling is enabled, the LDAP directory server maintains a pool of connections and assigns them as needed. When a connection is closed, the directory server returns the connection to the pool for future use. This can improve performance significantly.

To configure your LDAP connection pool:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **'User Directories'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
4. Click '**LDAP Connection Pool Configuration**' in the 'Additional Configuration' section.

Setting	Description	Default Value
Initial Pool Size	The number of LDAP connections created when initially connecting to the pool.	`1`
Preferred Pool Size	The optimal pool size. LDAP will remove idle connections when the number of connections grows larger than this value. A value of `0` (zero) means that there is no preferred size, so the number of idle connections is unlimited.	`10`
Maximum Pool Size	The maximum number of connections. When the number of connections reaches this value, LDAP will refuse further connections. As a result, requests made by an application to the LDAP directory server will be blocked. A value of `0` (zero) means that the number of connections is unlimited.	`0`

Pool Timeout (seconds)	The length of time, in seconds, that a connection may remain idle before being removed from the pool. When the application is finished with a pooled connection, the connection is marked as idle, waiting to be reused. A value of `0` (zero) means that the idle time is unlimited, so connections will never be timed out.	`30`
Pool Protocol	Only these protocol types will be allowed to connect to the LDAP directory server. If you want to allow multiple protocols, enter the values separated by a space. Valid values are: • `plain` • `ssl`	`plain ssl` (Both plain and ssl)
Pool Authentication	Only these authentication types will be allowed to connect to the LDAP directory server. If you want to allow multiple authentication types, enter the values separated by a space. See RFC 2829 for details of LDAP authentication methods. Valid values are: • `none` • `simple` • `DIGEST-MD5`	`simple`

Notes:

- The connection pool settings are system wide and will be used to create a new connection pool for every configured LDAP directory server.
- You must restart the LDAP directory server for these settings to take effect.

RELATED TOPICS

Connecting to an LDAP Directory
Configuring User Directories

Configuring an SSL Connection to Active Directory

If you want to configure a read/write connection with Microsoft Active Directory, you will need to install an SSL certificate, generated by your Active Directory server, onto your JIRA server and then install the certificate into your JVM keystore.

On this page:

- Prerequisites
- Step 1. Install the Microsoft Certificate Services
- Step 2. Obtain the Server Certificate
- Step 3. Import the Server Certificate

Updating user, group, and membership details in Active Directory requires that your Atlassian application be running in a JVM that trusts the AD server. To do this, we generate a certificate on the Active Directory server, then import it into Java's `keystore`.

Prerequisites

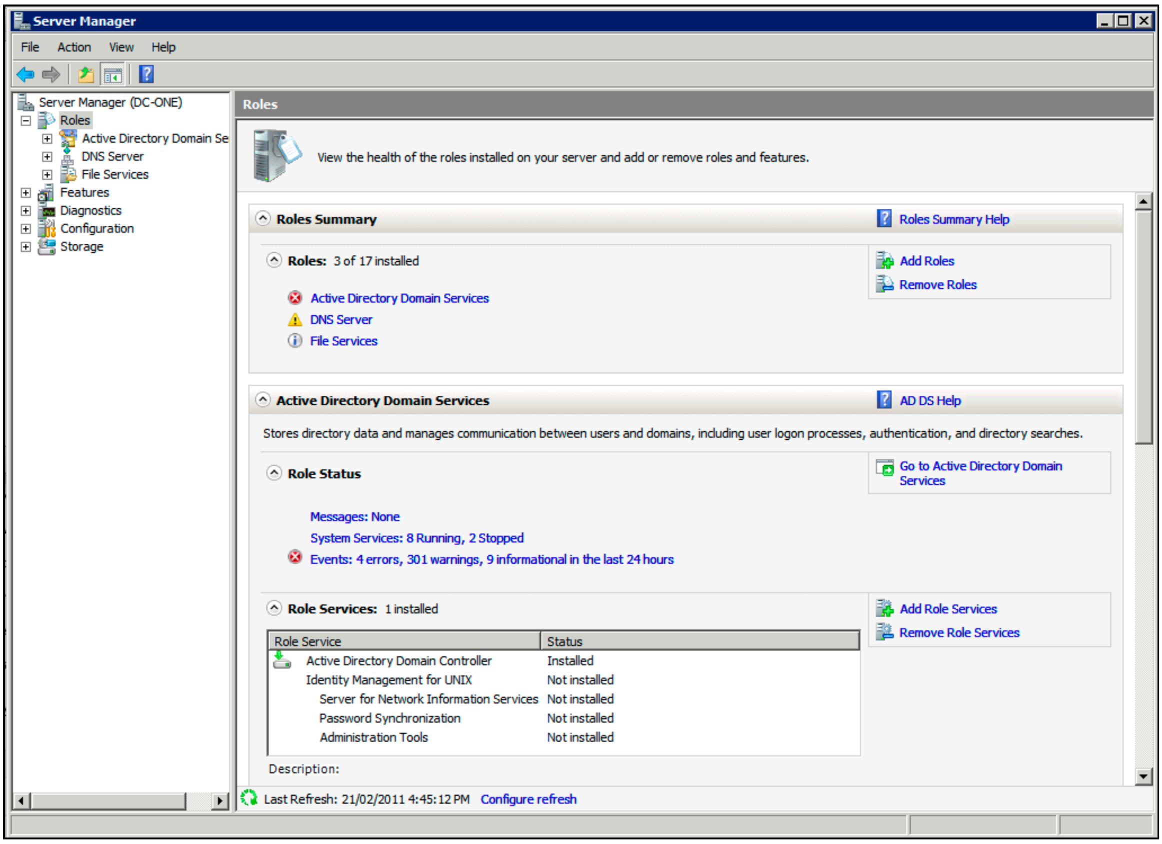
To generate a certificate, you need the following components installed on the Windows Domain Controller to which you're connecting.

Required Component	Description
Internet Information Services (IIS)	This is required before you can install Windows Certificate Services.
Windows Certificate Services	This installs a certification authority (CA) which is used to issue certificates. Step 1, below, explains this process.
Windows 2000 Service Pack 2	Required if you are using Windows 2000
Windows 2000 High Encryption Pack (128-bit)	Required if you are using Windows 2000. Provides the highest available encryption level (128-bit).

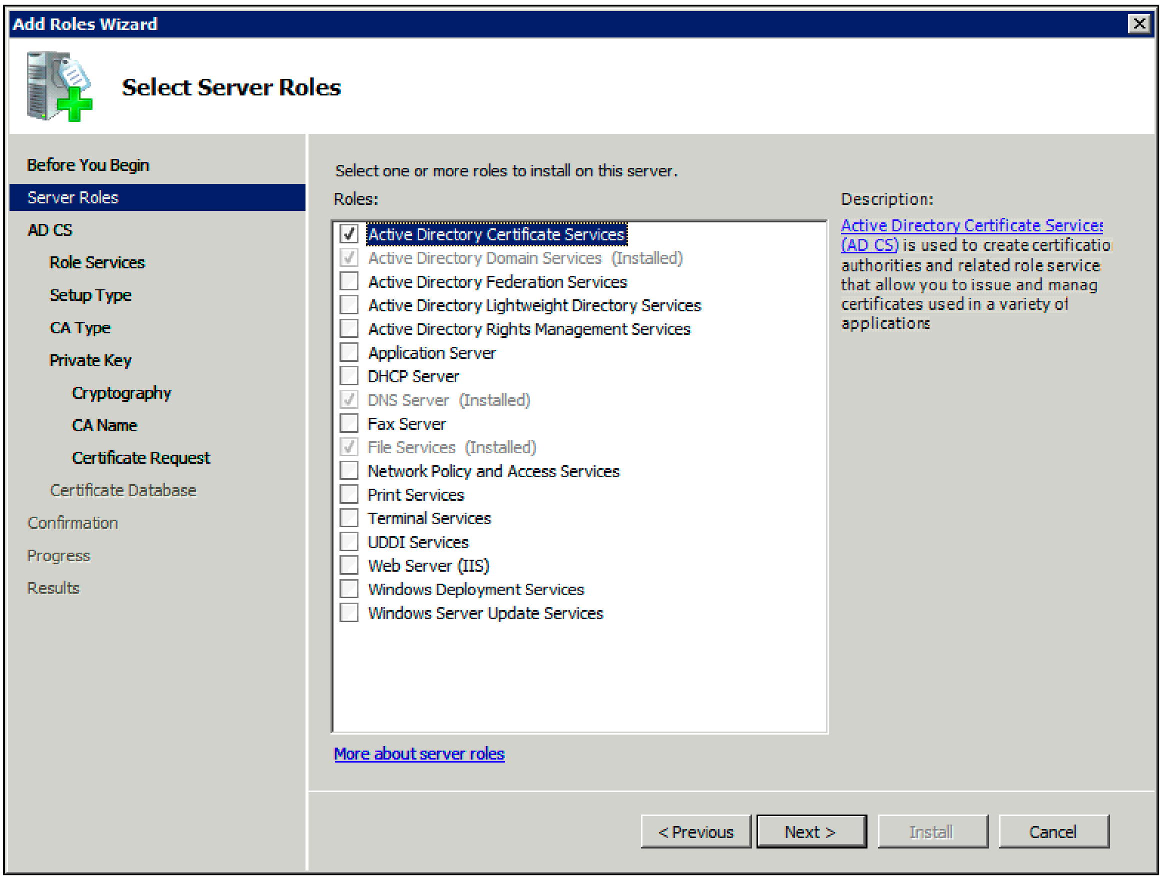
Step 1. Install the Active Directory Certificate Services

If Certificate Services are already installed, skip to step 2, below. The screenshots below are from Server 2008, but the process is similar for Server 2000 and 2003.

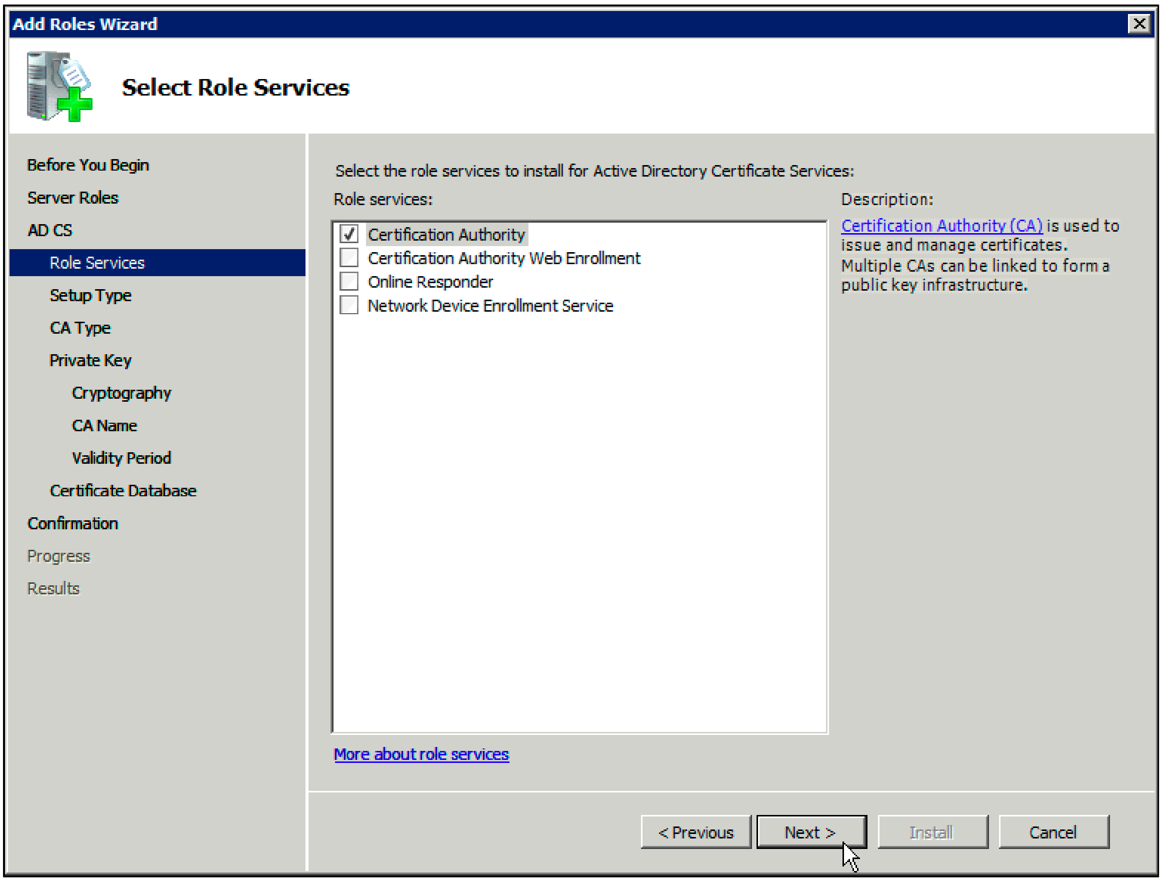
1. Log in to your Active Directory server as an administrator.
2. Click **Start**, point to **Administrative Tools**, and then click **Server Manager**.
3. In the **Roles Summary** section, click **Add Roles**.



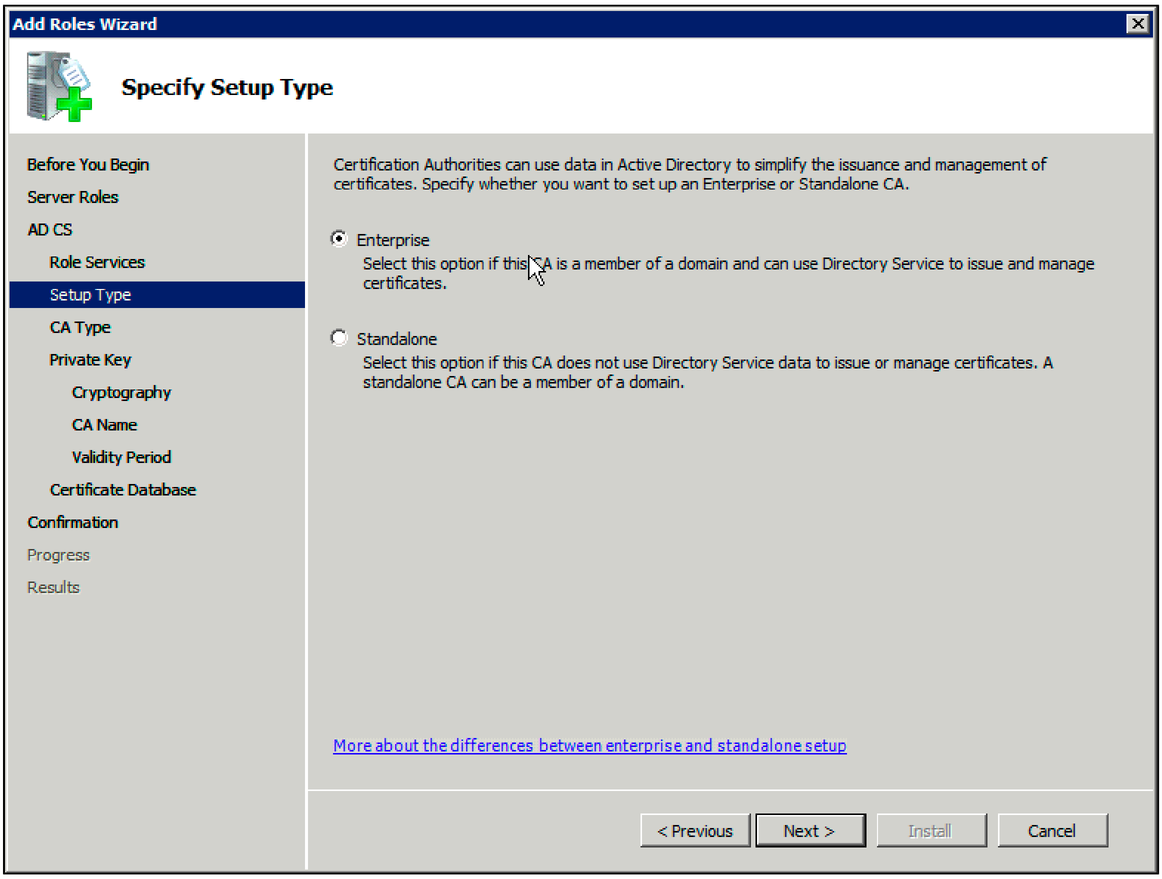
4. On the **Select Server Roles** page, select the **Active Directory Certificate Services** check box. Click **Next** twice.



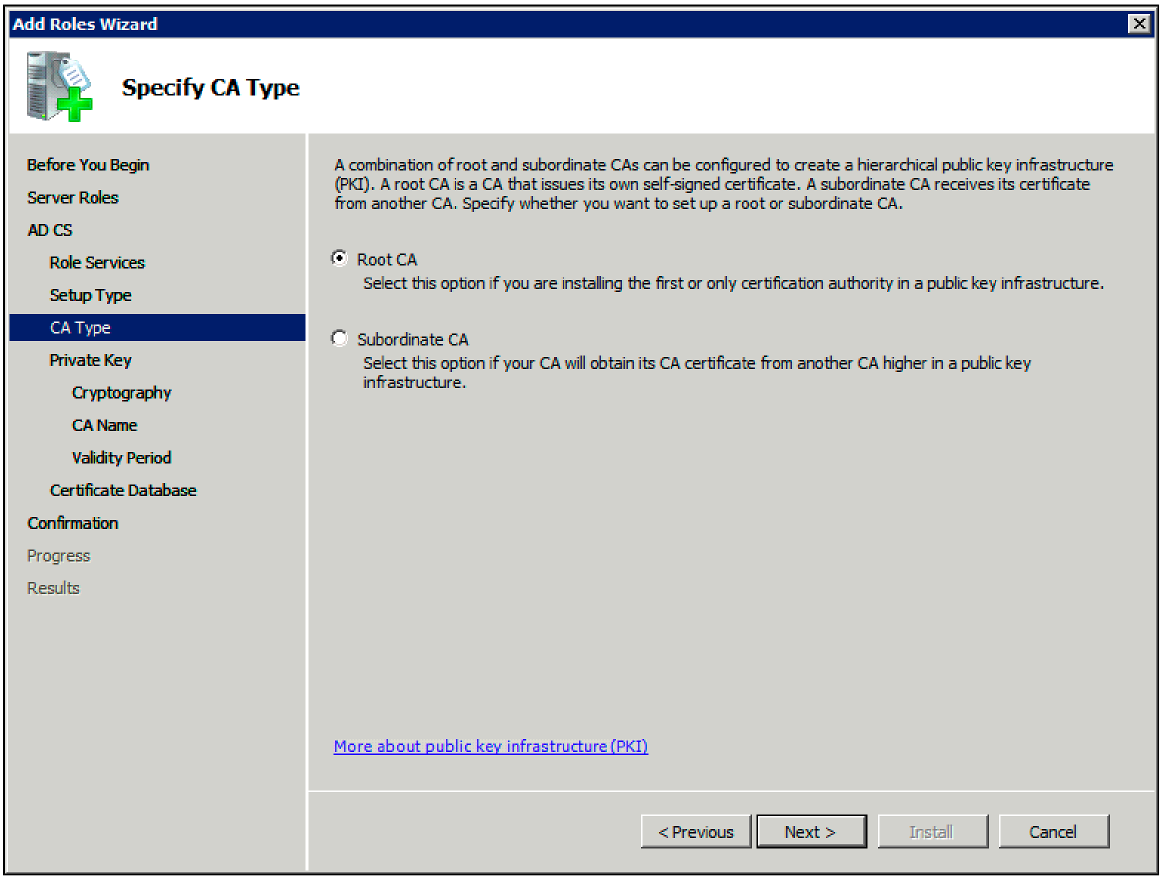
5. On the **Select Role Services** page, select the **Certification Authority** check box, and then click **Next**.



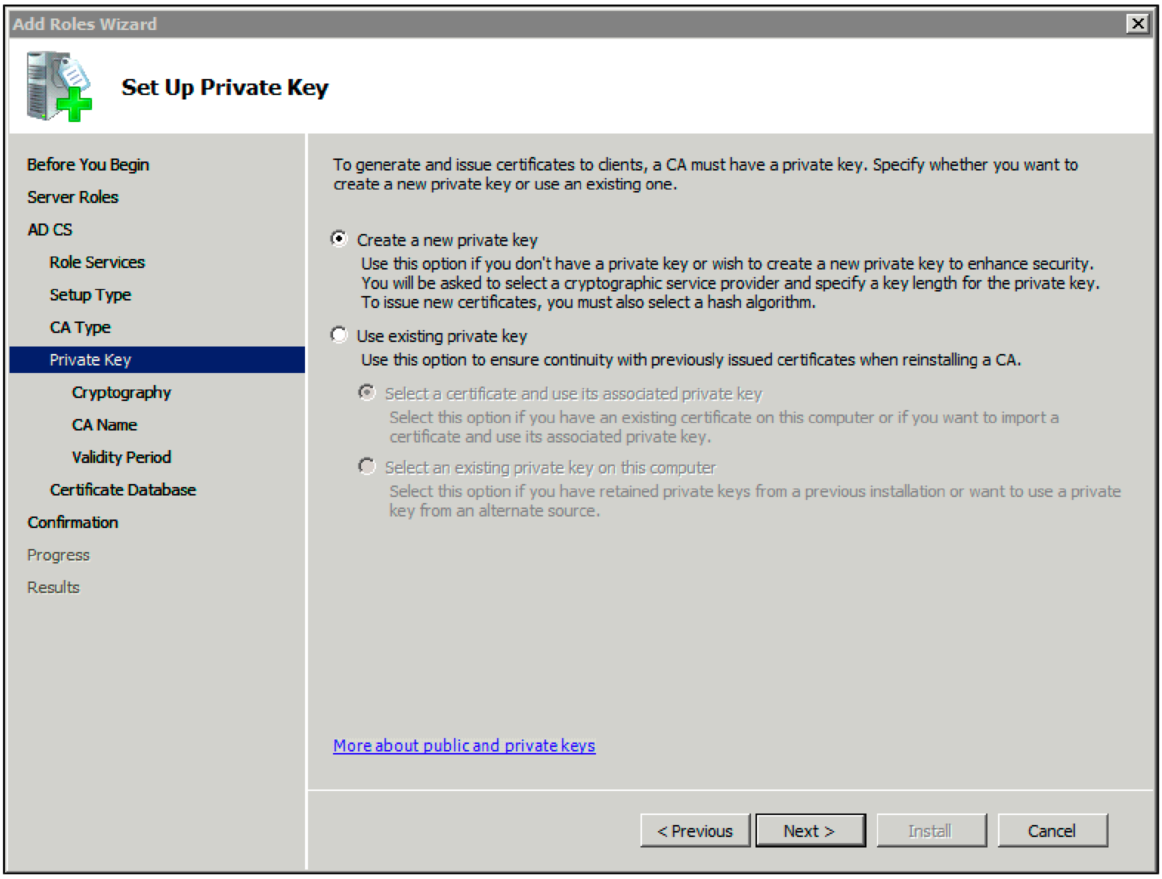
6. On the **Specify Setup Type** page, click **Enterprise**, and then click **Next**.



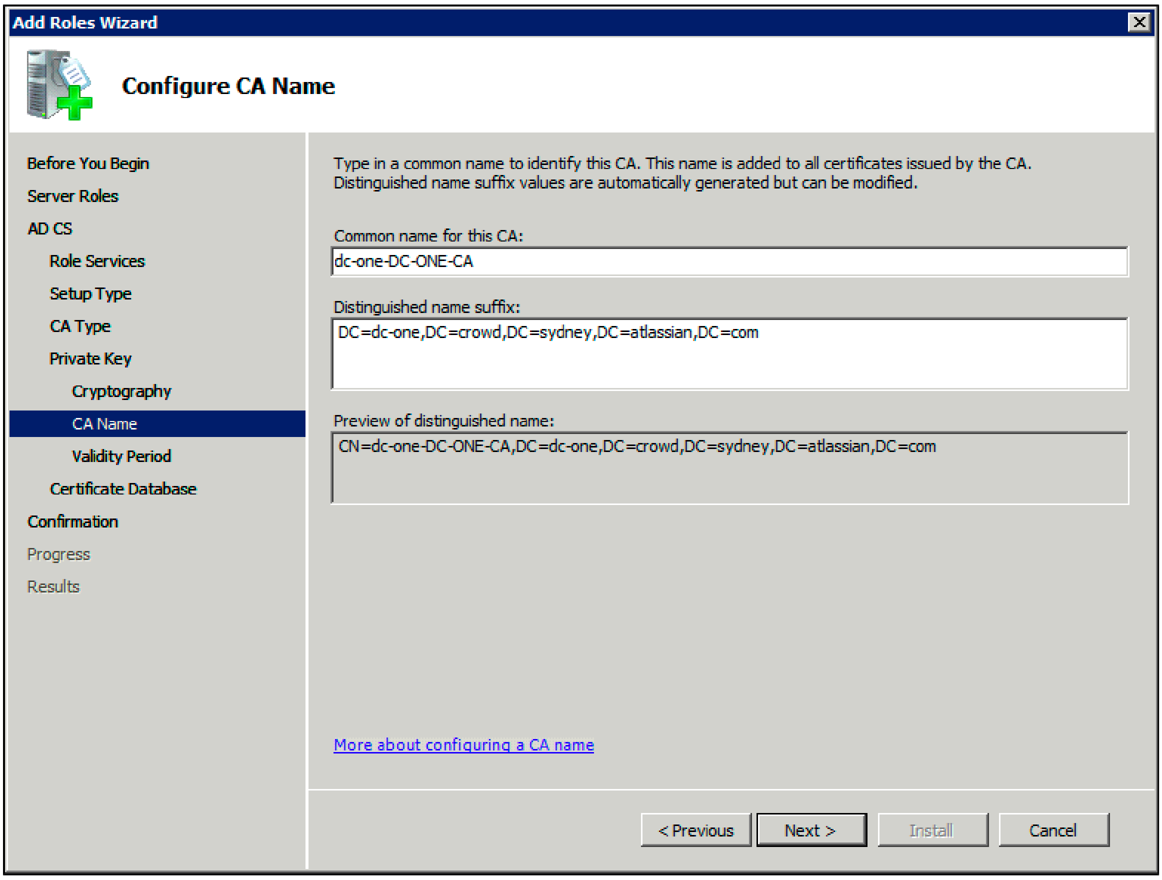
7. On the **Specify CA Type** page, click **Root CA**, and then click **Next**.



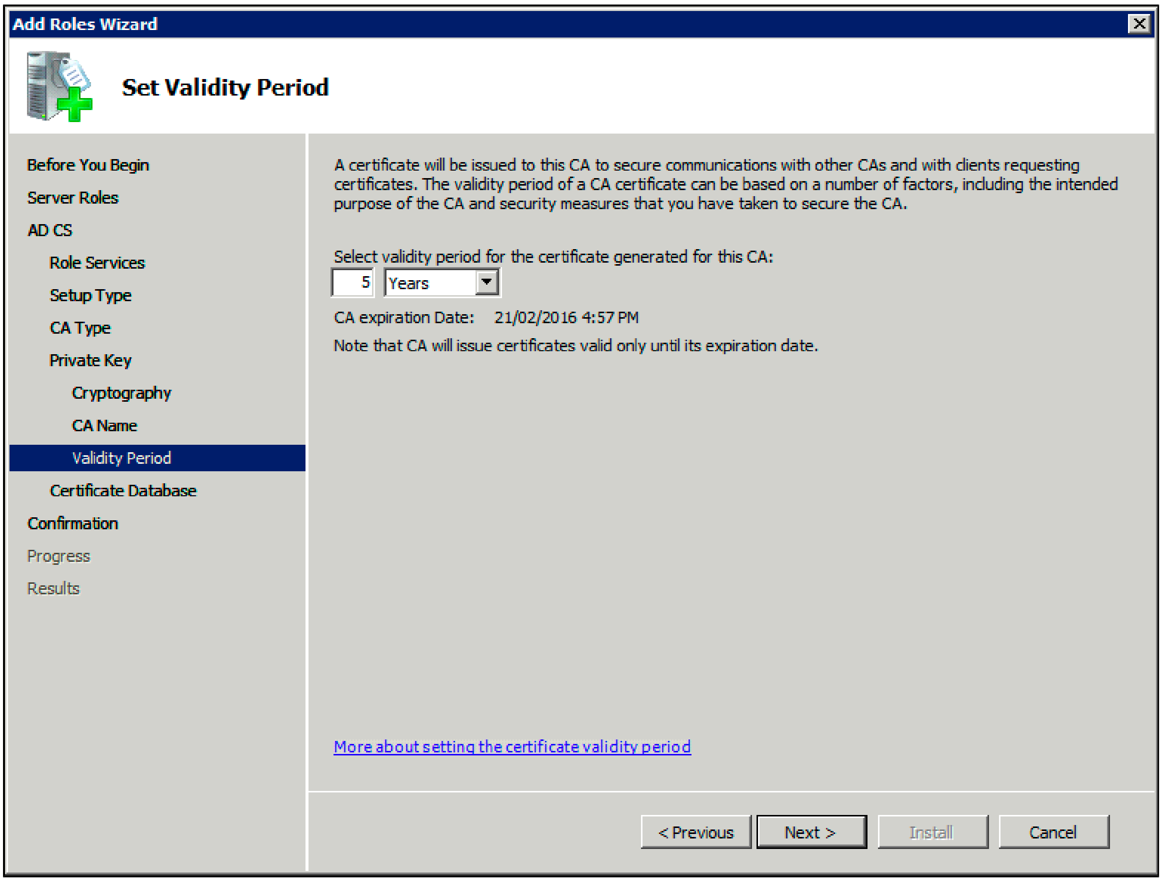
8. On the **Set Up Private Key** and **Configure Cryptography for CA** pages, you can configure optional configuration settings, including cryptographic service providers. However, the default values should be fine. Click **Next** twice.

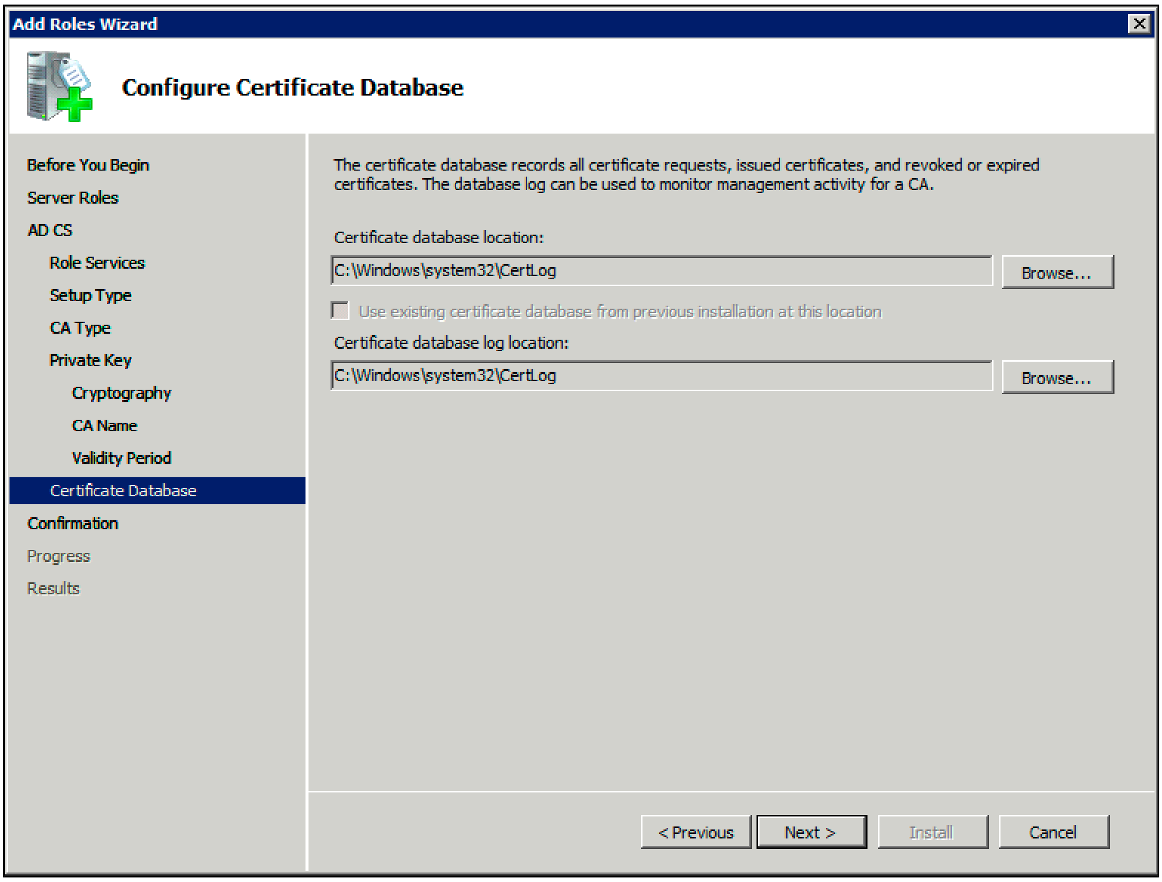


9. In the **Common name for this CA** box, type the common name of the CA, and then click **Next**.

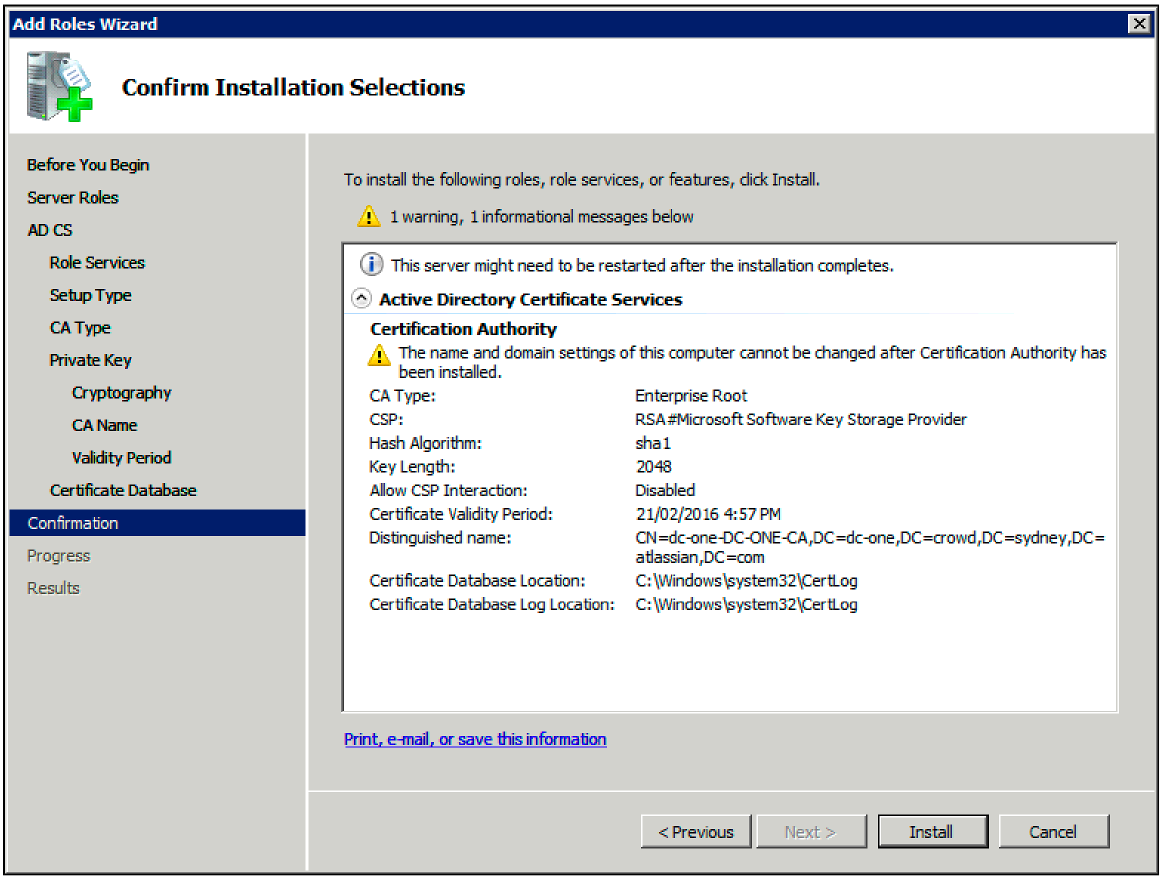


10. On the **Set Validity Period** page, accept the default values or specify other storage locations for the certificate database and the certificate database log, and then click **Next**.

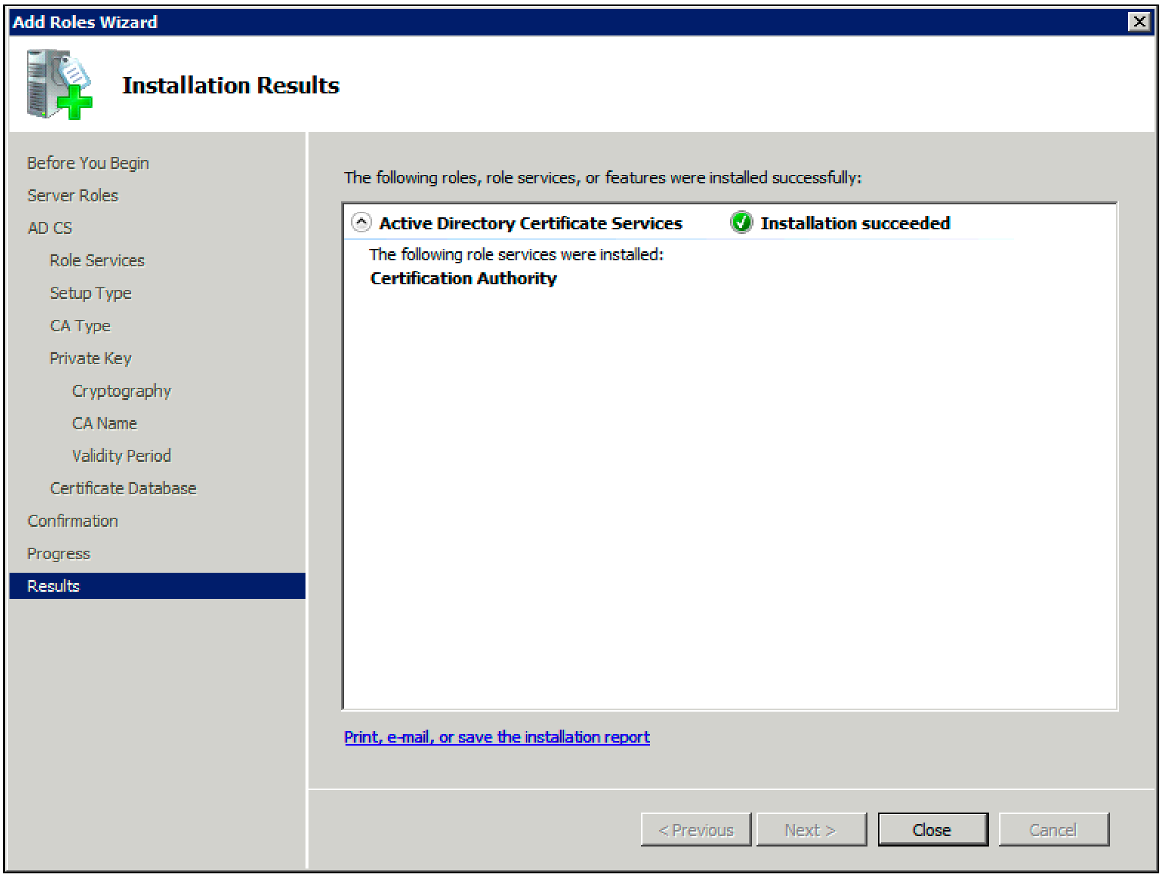




11. After verifying the information on the **Confirm Installation Selections** page, click **Install**.



12. Review the information on the results screen to verify that the installation was successful.



Step 2. Obtain the Server Certificate

The steps above describe how to install the certification authority (CA) on your Microsoft Active Directory server. Next, you will need to add the Microsoft Active Directory server's SSL certificate to the list of accepted certificates used by the JDK that runs your application server.

The Active Directory certificate is automatically generated and placed in root of the C:\ drive, matching a file format similar to the tree structure of your Active Directory server. For example: `c:\ad2008.ad01.atlassian.com_ad01.crt`.

You can also export the certificate by executing this command on the Active Directory server:

Step 3. Import the Server Certificate

For an application server to trust your directory's certificate, the certificate must be imported into your Java runtime environment. The JDK stores trusted certificates in a file called a keystore. The default keystore file is called `cacerts` and it lives in the `jre\lib\security` sub-directory of your Java installation.

In the following examples, we use `server-certificate.crt` to represent the certificate file exported by your directory server. You will need to alter the instructions below to match the name actually generated.

Windows

1. Navigate to the directory in which Java is installed. It's probably called something like `C:\Program Files\Java\jdk1.5.0_12`.
2. Run the command below, where `server-certificate.crt` is the name of the file from your directory server:
3. `keytool` will prompt you for a password. The default keystore password is `changeit`.
4. When prompted `Trust this certificate? [no]:` enter `yes` to confirm the key import:

```
Enter keystore password:  changeit
Owner: CN=ad01, C=US
Issuer: CN=ad01, C=US
Serial number: 15563d6677a4e9e4582d8a84be683f9
Valid from: Tue Aug 21 01:10:46 ACT 2007 until: Tue Aug 21 01:13:59 ACT 2012
Certificate fingerprints:
         MD5:  D6:56:F0:23:16:E3:62:2C:6F:8A:0A:37:30:A1:84:BE
         SHA1: 73:73:4E:A6:A0:D1:4E:F4:F3:CD:CE:BE:96:80:35:D2:B4:7C:79:C1
Trust this certificate? [no]:  yes
Certificate was added to keystore
```

You may now use the '**Secure SSL**' option when connecting your application to your directory server.

UNIX

1. Navigate to the directory in which Java is installed. `cd $JAVA_HOME` will usually get you there.
2. Run the command below, where `server-certificate.crt` is the name of the file from your directory server:
3. `keytool` will prompt you for a password. The default keystore password is `changeit`.
4. When prompted `Trust this certificate? [no]:` enter `yes` to confirm the key import:

```
Password:
Enter keystore password:  changeit
Owner: CN=ad01, C=US
Issuer: CN=ad01, C=US
Serial number: 15563d6677a4e9e4582d8a84be683f9
Valid from: Tue Aug 21 01:10:46 ACT 2007 until: Tue Aug 21 01:13:59 ACT 2012
Certificate fingerprints:
         MD5:  D6:56:F0:23:16:E3:62:2C:6F:8A:0A:37:30:A1:84:BE
         SHA1: 73:73:4E:A6:A0:D1:4E:F4:F3:CD:CE:BE:96:80:35:D2:B4:7C:79:C1
Trust this certificate? [no]:  yes
Certificate was added to keystore
```

You may now use the '**Secure SSL**' option when connecting your application to your directory server.

Mac OS X

1. Navigate to the directory in which Java is installed. This is usually `/Library/Java/Home`.
2. Run the command below, where `server-certificate.crt` is the name of the file from your directory server:
3. `keytool` will prompt you for a password. The default keystore password is `changeit`.
4. When prompted `Trust this certificate? [no]:` enter `yes` to confirm the key import:

```
Password:
Enter keystore password:  changeit
Owner: CN=ad01, C=US
Issuer: CN=ad01, C=US
Serial number: 15563d6677a4e9e4582d8a84be683f9
Valid from: Tue Aug 21 01:10:46 ACT 2007 until: Tue Aug 21 01:13:59 ACT 2012
Certificate fingerprints:
         MD5:  D6:56:F0:23:16:E3:62:2C:6F:8A:0A:37:30:A1:84:BE
         SHA1: 73:73:4E:A6:A0:D1:4E:F4:F3:CD:CE:BE:96:80:35:D2:B4:7C:79:C1
Trust this certificate? [no]:  yes
Certificate was added to keystore
```

You may now use the '**Secure SSL**' option when connecting your application to your directory server.

RELATED TOPICS

Connecting to an LDAP Directory
Configuring User Directories

Connecting to an Internal Directory with LDAP Authentication

You can connect your JIRA application to an LDAP directory for delegated authentication. This means that JIRA will have an internal directory that uses LDAP for authentication only.

Overview

An internal directory with LDAP authentication offers the features of an internal directory while allowing you to store and check users' passwords in LDAP only. On LDAP, all it does is to check the password. The LDAP connection is read only. Every user in the internal directory must map to a user on LDAP, otherwise they cannot log in.

When to use this option: Choose this option if you want to set up a user and group configuration within your application that suits your needs, while checking your users' passwords against the corporate LDAP directory. This option also helps to avoid the performance issues that may result from downloading large numbers of groups from LDAP.

On this page:

- Overview
- Connecting JIRA to an Internal Directory with LDAP Authentication
- Server Settings
- Schema Settings
- Diagram of a Possible Configuration

Connecting JIRA to an Internal Directory with LDAP Authentication

To connect to an internal directory but check logins via LDAP:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **'User Directories'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
4. **Add** a directory and select type '**Internal with LDAP Authentication**'.
5. Enter the values for the settings, as described below.
6. Save the directory settings.
7. Define the **directory order** by clicking the blue up- and down-arrows next to each directory on the '**User Directories**' screen. We recommend that the 'Internal Directory with LDAP Authentication' is at the top of the list.

   Here is a summary of how the directory order affects the processing:

   - The order of the directories is the order in which they will be searched for users and groups.
   - Changes to users and groups will be made only in the first directory where the application has permission to make changes.

   For details see Managing Multiple Directories.

8. Add your users and groups in JIRA. See Managing Users and Managing Groups.

Server Settings

Setting	Description

Name	A descriptive name that will help you to identify the directory. Examples: • `Internal directory with LDAP Authentication` • `Corporate LDAP for Authentication Only`
Hostname	The host name of your directory server. Examples: • `ad.example.com` • `ldap.example.com` • `opends.example.com`
Port	The port on which your directory server is listening. Examples: • `389` • `10389` • `636` (for example, for SSL)
Use SSL	Tick this check box if the connection to the directory server is an SSL (Secure Sockets Layer) connection. Note that you will need to configure an SSL certificate in order to use this setting.
Username	The distinguished name of the user that the application will use when connecting to the directory server. Examples: • `cn=administrator,cn=users,dc=ad,dc=example,dc=com` • `cn=user,dc=domain,dc=name` • `user@domain.name`
Password	The password of the user specified above.

Schema Settings

Setting	Description
Base DN	The root distinguished name (DN) to use when running queries against the directory server. Examples: • `o=example,c=com` • `cn=users,dc=ad,dc=example,dc=com` • For Microsoft Active Directory, specify the base DN in the following format: `dc=domain1,dc=local`. You will need to replace the `domain1` and `local` for your specific configuration. Microsoft Server provides a tool called `ldp.exe` which is useful for finding out and configuring the the LDAP structure of your server.
User Name Attribute	The attribute field to use when loading the username. Examples: • `cn` • `sAMAccountName`

Diagram of a Possible Configuration

Full Size

Diagram above: JIRA connecting to an LDAP directory for authentication only.

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Connecting to Crowd or Another JIRA Server for User Management

You can connect your JIRA application to Atlassian Crowd or to another JIRA server (version 4.3 or later) for management of users and groups, and for authentication (verification of a user's login).

On this page:

- Connecting JIRA to Crowd
- Connecting JIRA to Another JIRA Server
- Diagrams of Some Possible Configurations

Connecting JIRA to Crowd

Atlassian Crowd is an application security framework that handles authentication and authorisation for your web-based applications. With Crowd you can integrate multiple web applications and user directories, with support for single sign-on (SSO) and centralised identity management. The Crowd Administration Console provides a web interface for managing directories, users and their permissions. See the Crowd Administration Guide.

When to use this option: Connect to Crowd if you want to use the full Crowd functionality to manage your directories, users and groups. You can connect your Crowd server to a number of directories of all types that Crowd supports, including custom directory connectors.

To connect JIRA to Crowd:

1. Go to your **Crowd Administration Console** and define the JIRA application to Crowd. See the Crowd documentation: Adding an Application.
2. Log in to **JIRA** as a user with the **'JIRA System Administrators'** global permission.
3. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
4. Select **'User Directories'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
5. **Add** a directory and select type '**Atlassian Crowd**'. Enter the settings as described below.
6. Save the directory settings.
7. Define the **directory order** by clicking the blue up- and down-arrows next to each directory on the '**User Directories**' screen.

   Here is a summary of how the directory order affects the processing:

   - The order of the directories is the order in which they will be searched for users and groups.
   - Changes to users and groups will be made only in the first directory where the application has permission to make changes.

   For details see Managing Multiple Directories.

8. If required, configure JIRA to use Crowd for single sign-on (SSO) too. See the Crowd documentation: Integrating Crowd with Atlassian JIRA .

Settings in JIRA for the Crowd Directory Type

Setting	Description
Name	A meaningful name that will help you to identify this Crowd server amongst your list of directory servers. Examples: • `Crowd Server` • `Example Company Crowd`
Server URL	The web address of your Crowd server. Examples: • `http://www.example.com:8095/crowd/` • `http://crowd.example.com`
Application Name	The name of your application, as recognised by your Crowd server. Note that you will need to define the application in Crowd too, using the Crowd administration Console. See the Crowd documentation on adding an application.
Application Password	The password which the application will use when it authenticates against the Crowd framework as a client. This must be the same as the password you have registered in Crowd for this application. See the Crowd documentation on adding an application.

Crowd Permissions

Setting	Description
Read Only	The users, groups and memberships in this directory are retrieved from Crowd and can only be modified via Crowd. You cannot modify Crowd users, groups or memberships via the application administration screens.
Read/Write	The users, groups and memberships in this directory are retrieved from Crowd. When you modify a user, group or membership via the application administration screens, the changes will be applied directly to Crowd. Please ensure that the application has modification permissions for the relevant directories in Crowd. See the Crowd documentation: Specifying an Application's Directory Permissions.

Advanced Crowd Settings

Setting	Description
Enable Nested Groups	Enable or disable support for nested groups. Before enabling nested groups, please check to see if the user directory or directories in Crowd support nested groups. When nested groups are enabled, you can define a group as a member of another group. If you are using groups to manage permissions, you can create nested groups to allow inheritance of permissions from one group to its sub-groups.

Connecting JIRA to Another JIRA Server

Subject to certain limitations, you can connect a number of Atlassian web applications to a single JIRA server for centralised user management.

When to use this option: You can only connect to a server running **JIRA 4.3 or later**. Choose this option as an alternative to Atlassian Crowd, for simple configurations with a limited number of users.

Let's assume that you have two JIRA servers, called for example '**JIRA site 1**' and '**JIRA site 2**'. You want JIRA site 2 to manage your users and groups. JIRA site 1 will delegate user management to JIRA site 2.

To connect JIRA site 1 to use JIRA site 2 for user management:

1. Configure JIRA site 2 to recognise JIRA site 1:
    - Log in to JIRA site 2 as a user with the **'JIRA Administrators'** global permission.
    - Bring up the administration page.
    - Select **'Other Applications'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
    - **Add** an application.
    - Enter the **application name** and **password** that JIRA site 1 will use when accessing JIRA site 2.
    - Enter the **IP address** or addresses of JIRA site 1. Valid values are:
        - A full IP address, e.g. `192.168.10.12`.
        - A wildcard IP range, using CIDR notation, e.g. `192.168.10.1/16`. For more information, see the introduction to CIDR notation on Wikipedia and RFC 4632.
    - **Save** the new application.
2. Configure JIRA site 1 to delegate user management:
    - Log in to JIRA site 1 as a user with the **'JIRA Administrators'** global permission.
    - Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
    - Select **'User Directories'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
    - **Add** a directory and select type '**Atlassian JIRA**'.
    - Enter the settings as described below. When asked for the **application name** and **password**, enter the values that you defined in the settings on JIRA site 2.
    - Save the directory settings.
    - Define the **directory order** by clicking the blue up- and down-arrows next to each directory on the '**User Directories**' screen.

      Here is a summary of how the directory order affects the processing:

        - The order of the directories is the order in which they will be searched for users and groups.
        - Changes to users and groups will be made only in the first directory where the application has permission to make changes.

      For details see Managing Multiple Directories.

Settings for the JIRA Directory Type

Setting	Description
Name	A meaningful name that will help you to identify this JIRA server amongst your list of directory servers. Examples: • `JIRA Server` • `My Company JIRA`
Server URL	The web address of your JIRA server. Examples: • `http://www.example.com/8080` • `http://jira.example.com`
Application Name	The name used by your application when accessing the JIRA server that acts as user manager. Note that you will also need to define your application to that JIRA server, via the '**Other Applications**' option in the 'Users, Groups & Roles' section of the 'Administration' menu.
Application Password	The password used by your application when accessing the JIRA server that acts as user manager.

Permissions for the JIRA Directory Type

Setting	Description
Read Only	The users, groups and memberships in this directory are retrieved from the JIRA server that is acting as user manager. They can only be modified via that JIRA server.
Read/Write	The users, groups and memberships in this directory are retrieved from the JIRA server that is acting as user manager. When you modify a user, group or membership, the changes will be applied directly to your application and to the JIRA server that is acting as user manager.

Advanced Settings for the JIRA Directory Type

Setting	Description
Enable Nested Groups	Enable or disable support for nested groups. Before enabling nested groups, please check to see if nested groups are enabled on the JIRA server that is acting as user manager. When nested groups are enabled, you can define a group as a member of another group. If you are using groups to manage permissions, you can create nested groups to allow inheritance of permissions from one group to its sub-groups.

Diagrams of Some Possible Configurations

Full Size

Diagram above: Confluence, JIRA and other applications connecting to Crowd for user management.

Full Size

Diagram above: One JIRA site connecting to another for user management. JIRA site 2 does the user management, storing the user data in its internal directory.

Full Size

Diagram above: A number of applications connecting to JIRA (site 2) for user management, with JIRA in turn connecting to an LDAP server.

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Managing Multiple Directories

This page describes what happens when you have defined more than one user directory in JIRA. For example, you may have an internal directory and you may also connect to an LDAP directory server and/or other types of user directories. When you connect to a new directory server, you also need to define the **directory order**.

Duplicate usernames across directories are not supported. If you are connecting to more than one user directory, please ensure that the usernames are unique to one directory. For example, if you have a user `jsmith` in both 'Directory1' and 'Directory2', that is an unsupported configuration.

Overview

Here is a summary of how the directory order affects the processing:

- The order of the directories is the order in which they will be searched for users and groups.
- Changes to users and groups will be made only in the first directory where the application has permission to make changes.

On this page:

- Overview
- Configuring the Directory Order
- Effect of Directory Order
  - Login
  - Permissions
  - Updating Users and groups

Configuring the Directory Order

You can change the order of your directories as defined to JIRA. Select '**User Directories**' from the JIRA administration menu and click the blue up- and down-arrows next to each directory.

Directory Name	Type	Order
JIRA Internal Directory	Internal	
LDAP server	OpenLDAP (Read-Write)	

Notes:

- Please read the rest of this page to understand what effect the directory order will have on authentication (login) and permissions in JIRA, and what happens when you update users and groups in JIRA.

Effect of Directory Order

This section summarises the effect the order of the directories will have on login and permissions, and on the updating of users and groups.

Login

The directory order is significant during the authentication of the user, in cases where the same user exists in multiple directories. When a user attempts to log in, the application will search the directories in the order specified, and will use the credentials (password) of the *first occurrence of the user* to validate the login attempt.

Permissions

The directory order is significant when granting the user permissions based on group membership. If the same username exists in more than one directory, the application will look for group membership only in the first directory where the username appears, based on the directory order.

Example:

- You have connected two directories: The Customers directory and the Partners directory.
- The Customers directory is first in the directory order.
- A username `jsmith` exists in both the Customers directory and the Partners directory.
- The user `jsmith` is a member of group `G1` in the Customers directory and group `G2` in the Partners directory.
- The user `jsmith` will have permissions based on membership of `G1` only, not `G2`.

Updating Users and groups

If you update a user or group via the application's administration screens, the update will be made in the first directory where the application has write permissions.

Example 1:

- You have connected two directories: The Customers directory and the Partners directory.
- The application has permission to update both directories.
- The Customers directory is first in the directory order.
- A username `jsmith` exists in both the Customers directory and the Partners directory.
- You update the email address of user `jsmith` via the application's administration screens.
- The email address will be updated in the Customers directory only, not the Partners directory.

Example 2:

- You have connected two directories: A read/write LDAP directory and the internal directory.
- The LDAP directory is first in the directory order.
- All new users will be added to the LDAP directory. It is not possible to add a new user to the internal directory.

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Synchronising Data from External Directories

For certain directory types, JIRA stores a cache of directory information (users and groups) in the application database, to ensure fast recurrent access to user and group data. A synchronisation task runs periodically to update the internal cache with changes from the external directory.

On this page:

- Affected Directory Types
- How it Works
- Configuring the Synchronisation Interval
- Finding the Time Taken to Synchronise
- Manually Synchronising the Cache

Affected Directory Types

Data caching and synchronisation apply to the following user directory types:

- **LDAP** (Microsoft Active Directory and all supported LDAP directories) where permissions are set to **read only**.
- **LDAP** (Microsoft Active Directory and all supported LDAP directories) where permissions are set to **read only, with local groups**.
- **LDAP** (Microsoft Active Directory and all supported LDAP directories) where permissions are set to **read/write**.
- **Atlassian Crowd**.
- **Atlassian JIRA**.

Data caching and synchronisation do not occur for the following user directory types:

- **LDAP** (Microsoft Active Directory and all supported LDAP directories) where permissions are set to **authentication only, with local groups**.
- **Internal Directory with LDAP Authentication**.

How it Works

Here is a summary of the caching functionality:

- The caches are held in the application database.
- When you connect a new external user directory to the application, a synchronisation task will start running in the background to copy all the required users, groups and membership information from the external directory to the applicaiton database. This task may take a while to complete, depending on the size and complexity of your user base.
- Note that a user will not be able to log in until the synchronisation task has copied that user's details into the cache.
- A periodic synchronisation task will run to update the database with any changes made to the external directory. The default synchronisation interval, or polling interval, is one hour (60 minutes). You can change the synchronisation interval on the directory configuration screen.
- You can manually synchronise the cache if necessary.
- If the external directory permissions are set to read/write: Whenever an update is made to the users, groups or membership information via the application, the update will also be applied to the cache and the external directory immediately.
- All authentication is happens via calls to the external directory. When caching information from an external directory, the application database does not store user passwords.
- All other queries run against the internal cache.

Configuring the Synchronisation Interval

You can set the '**Synchronisation Interval**' on the directory configuration screen. The synchronisation interval is the period of time to wait between requests for updates from the directory server.

The length you choose for your synchronisation interval depends on:

- The length of time you can tolerate stale data.
- The amount of load you want to put on the application and the directory server.
- The size of your user base.

If you synchronise more frequently, then your data will be more up to date. The downside of synchronising more frequently is that you may overload your server with requests.

If you are not sure what to do, we recommend that you start with an interval of 60 minutes (this is the default setting) and reduce the value incrementally. You will need to experiment with your setup.

Finding the Time Taken to Synchronise

The '**User Directories**' screen shows information about the last synchronisation operation, including the length of time it took.

Manually Synchronising the Cache

You can manually synchronise the cache by clicking '**Synchronise**' on the '**User Directories**' screen. If a synchronisation operation is already in progress, you cannot start another until the first has finished.

Screen snippet: User directories, showing information about synchronisation

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Managing Nested Groups

Some directory servers allow you to define a group as a member of another group. Groups in such a structure are called 'nested groups'. If you are using groups to manage permissions, you can create nested groups to allow inheritance of permissions from one group to its sub-groups.

This page describes how JIRA handles nested groups that exist in one or more of your directory servers.

Enabling Nested Groups

You can enable or disable support for nested groups on each directory individually. Select '**User Directories**' from the JIRA administration menu, **edit** the directory and select '**Enable Nested Groups'**. See Configuring User Directories.

Notes:

- Before enabling nested groups for a specific directory type in JIRA, please make sure that your directory server supports nested groups.
- Please read the rest of this page to understand what effect nested groups will have on authentication (login) and permissions in JIRA, and what happens when you update users and groups in JIRA.

On this page:

- Enabling Nested Groups
- Effect of Nested Groups
  - Login
  - Permissions
  - Viewing Lists of Group Members
  - Adding and Updating Group Memberships
- Examples
  - Example 1: User is Member of Sub-Group
  - Example 2: Sub-Groups as Members of the 'jira-developers' group
  - Example 3: Sub-Groups as Members of the 'confluence-users' group
- Notes

Effect of Nested Groups

This section summarises the effect nested groups will have on login and permissions, and on the viewing and updating of users and groups.

Login

When a user logs in, they will be allowed access to the application if they belong to an authorised group or any of its sub-groups.

Permissions

The user will be allowed access to a function if they belong to a group that has the necessary permissions, or if they belong to any of its sub-groups.

Viewing Lists of Group Members

If you ask to view the members of a group, you will see all users who are members of the group and all users belonging its sub-groups, consolidated into one list. We call this a '**flattened**' list.

You cannot view or edit the nested groups themselves. You will not be able to see that one group is a member of another group.

Adding and Updating Group Memberships

If you add a user to a group, the user is added to the named group and not to any other groups.

If you try to remove a user from a flattened list, the following will happen:

- If the user is a member of the top group in the hierarchy (tree) of groups contained in the flattened list, the user will be removed from the group.
- Otherwise, you will see an error message stating that the user is not a direct member of the group.

Examples

Example 1: User is Member of Sub-Group

Let's assume that the following two groups exist in your directory server:

- `staff`
- `marketing`

Memberships:

- The `marketing` group is a member of the `staff` group.
- User `jsmith` is a member of `marketing`.

You will see that `jsmith` is a member of both `marketing` and `staff`. You will not see that the two groups are nested. If you assign permissions to the `staff` group, then `jsmith` will get those permissions.

Example 2: Sub-Groups as Members of the 'jira-developers' group

In an LDAP directory server, we have groups '**engineering-group**' and '**techwriters-group**'. We want to grant both groups developer-level access to our JIRA site.

- Add a group called '**jira-developers**'.
- Add the '**engineering-group**' as a sub-group of '**jira-developers**'.
- Add the '**techwriters-group**' as a sub-group of '**jira-developers**'.

Group memberships are now:

- **jira-developers** — sub-groups: **engineering-group**, **techwriters-group**
- **engineering-group** — sub-groups: **dev-a**, **dev-b**; users: **pblack**
- **dev-a** — users: **jsmith**, **sbrown**
- **dev-b** — users: **jsmith**, **dblue**
- **techwriters-group** — users: **rgreen**

When JIRA requests a list of users in the '**jira-developers**' group, it will receive the following list:

- **pblack**
- **jsmith**
- **sbrown**
- **dblue**
- **rgreen**

Diagram: Sub-groups as members of the 'jira-developers' group

Full Size

Example 3: Sub-Groups as Members of the 'confluence-users' group

In an LDAP directory server, we have groups '**engineering-group**' and '**payroll-group**'. We want to grant both groups access to our Confluence site.

- Add a group called '**confluence-users**'.
- Add the '**engineering-group**' as a sub-group of '**confluence-users**'.
- Add the '**payroll-group**' as a sub-group of '**confluence-users**'.

Group memberships are now:

- **confluence-users** — sub-groups: **engineering-group**, **payroll-group**
- **engineering-group** — sub-groups: **dev-a**, **dev-b**; users: **pblack**
- **dev-a** — users: **jsmith**, **sbrown**
- **dev-b** — users: **jsmith**, **dblue**
- **payroll-group** — users: **rgreen**

When Confluence requests a list of users in the '**confluence-users**' group, it will receive the following list:

- **pblack**
- **jsmith**
- **sbrown**
- **dblue**
- **rgreen**

Diagram: Sub-groups as members of the 'confluence-users' group

Full Size

Notes

- **Possible impact on performance.** Enabling nested groups may result in slower user searches.

- **Definition of nested groups in LDAP.** In an LDAP directory, a nested group is defined as a child group entry whose DN (Distinguished Name) is referenced by an attribute contained within a parent group entry. For example, a parent group '**Group One**' might have an `objectClass=group` attribute and one or more `member=DN` attributes, where the DN can be that of a user *or* that of a group elsewhere in the LDAP tree:

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Diagrams of Possible Configurations for User Management

The aim of these diagrams is to help people understand each directory type at a glance. We have kept the diagrams simple and conceptual, with just enough information to be correct.

Some things that we do **not** attempt to show:

- In most cases, we do not attempt to show that you can have multiple directory types mapped to JIRA at the same time. We illustrate that fact in just the first two LDAP diagrams.
- We have not included a diagram for Confluence's legacy connection to JIRA database.
- We do not attempt to show all of the possible configurations and layered connections that are available now that you can use JIRA as a directory manager.

On this page:

- JIRA Internal Directory
- JIRA with Read/Write Connection to LDAP
- JIRA with Read-Only Connection to LDAP, with Local Groups
- JIRA Internal Directory with LDAP Authentication
- One JIRA Site Connecting to Another
- Confluence and JIRA Connecting to Crowd
- A Number of Applications Connecting to JIRA

JIRA Internal Directory

Full Size

Diagram above: JIRA using its internal directory for user management.

JIRA with Read/Write Connection to LDAP

Full Size

Diagram above: JIRA connecting to an LDAP directory.

JIRA with Read-Only Connection to LDAP, with Local Groups

Full Size

Diagram above: JIRA connecting to an LDAP directory with permissions set to read only and local groups.

JIRA Internal Directory with LDAP Authentication

Full Size

Diagram above: JIRA connecting to an LDAP directory for authentication only.

One JIRA Site Connecting to Another

Full Size

Diagram above: One JIRA site connecting to another for user management. JIRA site 2 does the user management, storing the user data in its internal directory.

Confluence and JIRA Connecting to Crowd

Full Size

Diagram above: Confluence, JIRA and other applications connecting to Crowd for user management.

A Number of Applications Connecting to JIRA

Full Size

Diagram above: A number of applications connecting to JIRA (site 2) for user management, with JIRA in turn connecting to an LDAP server.

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
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- Diagrams of Possible Configurations for User Management
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User Management Limitations and Recommendations

This page describes the optimal configurations and limitations that apply to user management in JIRA.

On this page:

- General Recommendations
- Recommendations for Connecting to LDAP
  - Optimal Number of Users and Groups in your LDAP Directory
  - Redundant LDAP is Not Supported
  - Specific Notes for Connecting to Active Directory
- Recommendations for Connecting to Another JIRA Server
  - Single Sign-On Across Multiple Applications is Not Supported
  - Custom Application Connectors are Not Supported
  - Custom Directories are Not Supported
  - Optimal Number of Users and Applications
  - Recommendations

General Recommendations

Duplicate usernames across directories are not supported. If you are connecting to more than one user directory, please ensure that the usernames are unique to one directory. For example, if you have a user `jsmith` in both 'Directory1' and 'Directory2', that is an unsupported configuration.

Recommendations for Connecting to LDAP

Please consider the following limitations and recommendations when connecting to an LDAP user directory.

Optimal Number of Users and Groups in your LDAP Directory

The connection to your LDAP directory provides powerful and flexible support for connecting to, configuring and managing LDAP directory servers. To achieve optimal performance, a background synchronisation task loads the required users and groups from the LDAP server into the application's database, and periodically fetches updates from the LDAP server to keep the data in step. The amount of time needed to copy the users and groups rises with the number of users, groups, and group memberships. For that reason, we recommended a maximum number of users and groups as described below.

This recommendation affects connections to LDAP directories:

- Microsoft Active Directory
- All other LDAP directory servers

The following LDAP configurations are **not** affected:

- Internal directories with LDAP authentication
- LDAP directories configured for 'Authentication Only, Copy User On First Login'

Please choose one of the following solutions, depending on the number of users, groups and memberships in your LDAP directory.

Your environment	Recommendation
Up to 10 000 (ten thousand) users, 1000 (one thousand) groups, and 20 (twenty) groups per user	Choose the '**LDAP**' or '**Microsoft Active Directory**' directory type. You can make use of the full synchronisation option. Your application's database will contain all the users and groups that are in your LDAP server.
More than 10 000 users	Use LDAP filters to reduce the number of users and groups visible to the synchronisation task.

Our Test Results

We performed internal testing of synchronisation with an AD server on our local network consisting of 10 000 users, 1000 groups and 200 000 memberships.

We found that the initial synchronisation took about 5 minutes. Subsequent synchronisations with 100 modifications on the AD server took a couple of seconds to complete.

Please keep in mind that a number of factors come into play when trying to tune the performance of the synchronisation process, including:

- **Size of userbase.** Use LDAP filters to keep this to the minimum that suits your requirements.
- **Type of LDAP server.** We currently support change detection in AD, so subsequent synchronisations are much faster for AD than for other LDAP servers.
- **Network topology.** The further away your LDAP server is from your application server, the more latent LDAP queries will be.
- **Database performance.** As the synchronisation process caches data in the database, the performance of your database will affect the performance of the synchronisation.
- **JVM heap size.** If your heap size is too small for your userbase, you may experience heavy garbage collection during the synchronisation process which could in turn slow down the synchronisation.

Redundant LDAP is Not Supported

The LDAP connections do not support the configuration of two or more LDAP servers for redundancy (automated failover if one of the servers goes down).

Specific Notes for Connecting to Active Directory

When the application synchronises with Active Directory (AD), the synchronisation task requests only the changes from the LDAP server rather than the entire user base. This optimises the synchronisation process and gives much faster performance on the second and subsequent requests.

On the other hand, this synchronisation method results in a few limitations:

1. **Externally moving objects out of scope or renaming objects causes problems in AD.** If you move objects out of scope in AD, this will result in an inconsistent cache. We recommend that you do not use the external LDAP directory interface to move objects out of the scope of the sub-tree, as defined on the application's directory configuration screen. If you do need to make structural changes to your LDAP directory, manually synchronise the directory cache after you have made the changes to ensure cache consistency.
2. **Synchronising between AD servers is not supported.** Microsoft Active Directory does not replicate the uSNChanged attribute across instances. For that reason, we do not support connecting to different AD servers for synchronisation. (You can of course define multiple different directories, each pointing to its own respective AD server.)
3. **You must restart the application after restoring AD from backup.** On restoring from backup of an AD server, the uSNChanged timestamps are reverted to the backup time. To avoid the resulting confusion, you will need to flush the directory cache after a Active Directory restore operation.
4. **Obtaining AD object deletions requires administrator access.** Active Directory stores deleted objects in a special container called cn=Deleted Objects. By default, to access this container you need to connect as an administrator and so, for the synchronisation task to be aware of deletions, you must use administrator credentials. Alternatively, it is possible to change the permissions on the cn=Deleted Objects container. If you wish to do so, please see this Microsoft KB Article.
5. **The User DN used to connect to AD must be able to see the uSNChanged attribute.** The synchronisation task relies on the uSNChanged attribute to detect changes, and so must be in the appropriate AD security groups to see this attribute for all LDAP objects in the subtree.

Recommendations for Connecting to Another JIRA Server

Please consider the following limitations and recommendations when connecting to a JIRA server for user management.

Single Sign-On Across Multiple Applications is Not Supported

When you connect to JIRA for user management, you will not have single sign-on across the applications connected in this way. JIRA, when acting as a directory manager, does not support SSO.

Custom Application Connectors are Not Supported

Only JIRA and Confluence can connect to a JIRA server for user management. We intend to add support for FishEye, Crucible and Bamboo at some time in the future. Custom application connectors will need to use the new REST API.

Custom Directories are Not Supported

Earlier versions of JIRA supported OSUser Providers. It was therefore possible write a special provider to obtain user information from any external user directory. This is no longer the case.

Optimal Number of Users and Applications

Please consider the following limitations when connecting to a JIRA server for user management:

- Maximum 500 users.
- Maximum 5 connected applications.

Recommendations

Your environment	Recommendation
If **all** the following are true: • You have fewer than 500 users. • You want to share user and group management across just a few applications, such as one JIRA server and one Confluence server, or two JIRA servers. • You do not need single sign-on (SSO) between JIRA and Confluence, or between two JIRA servers. • You do not have custom application connectors. Or, if you do have them, you are happy to convert them to use the new REST API. • You are happy to shut down all your servers when you need to upgrade JIRA. • You do not have FishEye, Crucible or Bamboo. Or, if you do have them, you are happy not to integrate their user management with JIRA at the moment. You are happy to wait until at least June 2011, perhaps longer.	Your environment meets the optimal requirements for using JIRA for user management.

If **one or more** of the following are true: • You have more than 500 users. • You want to share user and group management across more than 5 applications. • You need single sign-on (SSO) across multiple applications. • You have custom applications integrated via the Crowd SOAP API, and you cannot convert them to use the new REST API. • You are not happy to shut down all your servers when you need to upgrade JIRA. • You have FishEye, Crucible or Bamboo and you want to integrate their user management with JIRA immediately.	We recommend that you install Atlassian Crowd for user management and SSO.
If you are considering creating a custom directory connector to define your own storage for users and groups	Please see if one of the following solutions will work for you: • If you have written a custom provider to support a specific LDAP schema, please check the supported LDAP schemas to see if you can use one of them instead. • If you have written a custom provider to support nested groups, please consider enabling nested groups in the supported directory connectors instead. • If you have written a custom provider to connect to your own database, please consider loading the data into the application's database instead. • If you need to keep the custom directory connection, please consider whether Atlassian Crowd meets your requirements. See the documentation on developing a custom directory connector for Crowd.

RELATED TOPICS

Connecting to an LDAP Directory
Connecting to Crowd or Another JIRA Server for User Management
Configuring User Directories

Allowing Other Applications to Connect to JIRA for User Management

You can allow other applications — e.g. Atlassian Confluence, FishEye/Crucible (in the near future), or another JIRA server — to connect to your JIRA server for management of users and groups, and for authentication (verification of a user's login).

On this page:

- Allowing an Application to Connect to JIRA for User Management
- Diagrams of Some Possible Configurations

Allowing an Application to Connect to JIRA for User Management

Subject to certain limitations, you can connect a number of Atlassian web applications to a single JIRA server for centralised user management.

When to use this option: You can only connect to a server running **JIRA 4.3 or later**. Choose this option as an alternative to Atlassian Crowd, for simple configurations with a limited number of users.

1. **Add the application in JIRA:**
    a. Log in to JIRA as a user with the **'JIRA Administrators'** global permission.
    b. Bring up the administration page.
    c. Select **'Other Applications'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
    d. **Add** an application.
    e. Enter the **application name** and **password** that the application will use when accessing your JIRA server.
    f. Enter the **IP address** or addresses of the application. Valid values are:
        - A full IP address, e.g. `192.168.10.12`.
        - A wildcard IP range, using CIDR notation, e.g. `192.168.10.1/16`. For more information, see the introduction to CIDR notation on Wikipedia and RFC 4632.
    g. **Save** the new application.
2. **Set up the JIRA user directory in the application:**
    e.g. see Connecting Confluence to JIRA for User Management or Connecting JIRA to Another JIRA Server:
    a. Log into the application that is going to connect to JIRA for user management.
    b. Go to the application's '**User Directories**' administration area.
    c. Add a new directory of type '**Atlassian JIRA**'.
    d. Define the directory order (e.g. see Managing Multiple Directories).
3. **Create any groups in JIRA that are required by the application:**
    e.g. see Connecting Confluence to JIRA for User Management.

Diagrams of Some Possible Configurations

Full Size

Diagram above: Confluence connecting to JIRA for user management.

Full Size

Diagram above: One JIRA site connecting to another for user management. JIRA site 2 does the user management, storing the user data in its internal directory.

RELATED TOPICS

Configuring User Directories

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or Another JIRA Server for User Management
- Managing Multiple Directories
- Synchronising Data from External Directories
- Managing Nested Groups
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Allowing Other Applications to Connect to JIRA for User Management

Enabling Public Signup and CAPTCHA

For some organisations it is appropriate to enable *signup,* which allows visitors to immediately create their own JIRA user accounts. If signup is not enabled, then only a JIRA administrator can create new user accounts.

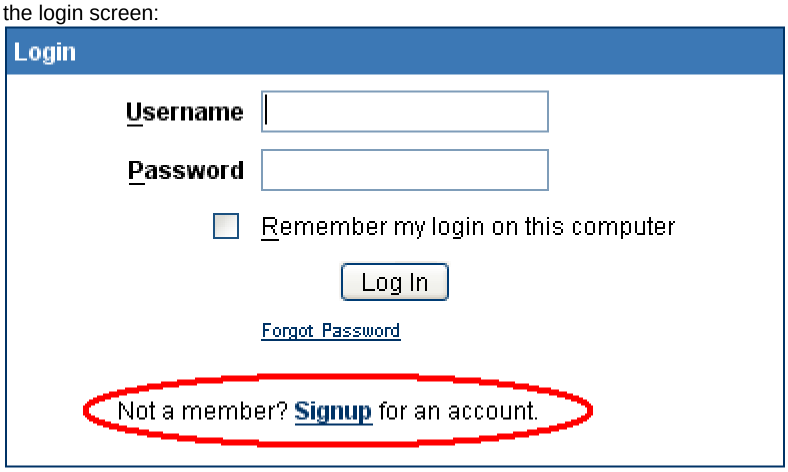
For example, enabling signup can be useful if you are using JIRA as a support system and have a very large number of potential users, of which only some will need to log support tickets.

For security reasons, even if you enable signup, it is still necessary for users to have the appropriate project permissions before they can see or create issues. Note that you can use automatic group membership to add all new users to appropriate groups.

If your JIRA server is accessible from outside your organisation's firewall, and you have enabled signup, then you may want to also enable *CAPTCHA.* CAPTCHA helps ensure that only real humans (and not automated spam systems) can sign themselves up to JIRA. When CAPTCHA is enabled, visitors will need to recognise a distorted picture of a word (see example below), and must type the word into a text field. This is easy for humans to do, but very difficult for computers.

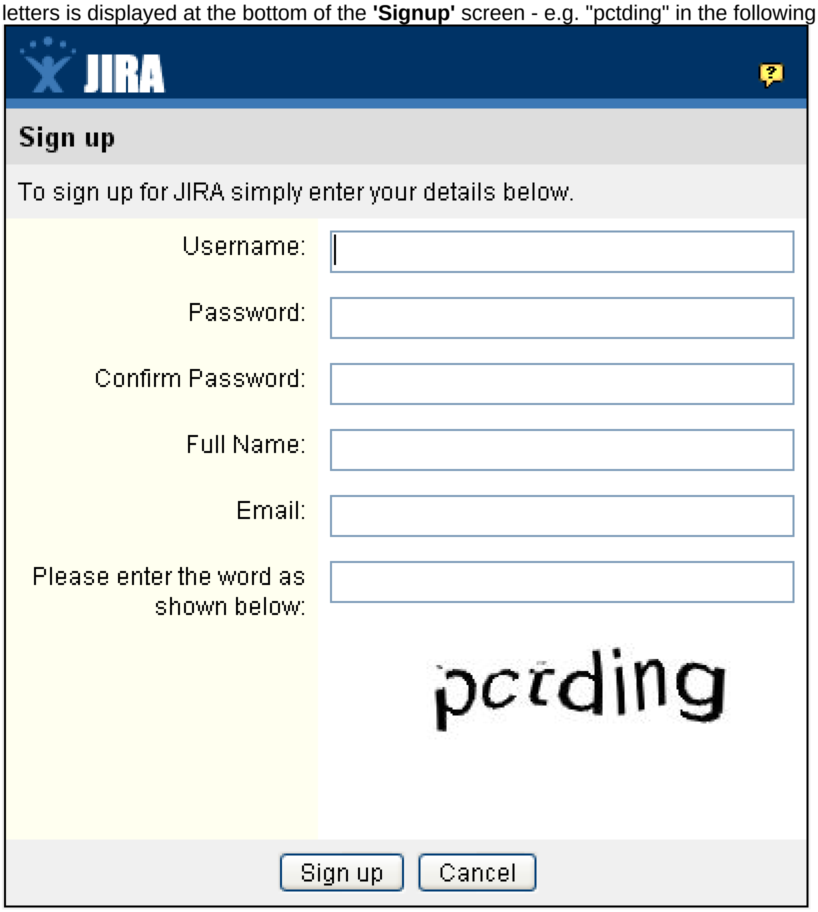
Enabling Public Signup

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left navigation column, click '**General Configuration**'.
4. This will display the 'General Configuration' screen. Click the **'Edit Configuration'** link at the bottom of the screen.
5. In the **'Mode'** drop-down, select **'Public'**.
6. Click the **'Update'** button at the bottom of the screen.
7. Log out of JIRA, then click the '**Log In**' link at the top right of the screen and verify that the **'Signup'** link is displayed at the bottom of the login screen:



Enabling CAPTCHA

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left navigation column, click '**General Configuration**'.
4. This will display the 'General Configuration' screen. Click the **'Edit Configuration'** link at the bottom of the screen.
5. Locate **'CAPTCHA on signup'** and select **'On'**.
6. Click the **'Update'** button at the bottom of the screen.
7. Log out of JIRA, click the '**Log In**' link at the top right of the screen, then click the '**Signup**' link and verify that a random sequence of letters is displayed at the bottom of the **'Signup'** screen - e.g. "pctding" in the following screenshot:



Managing Users

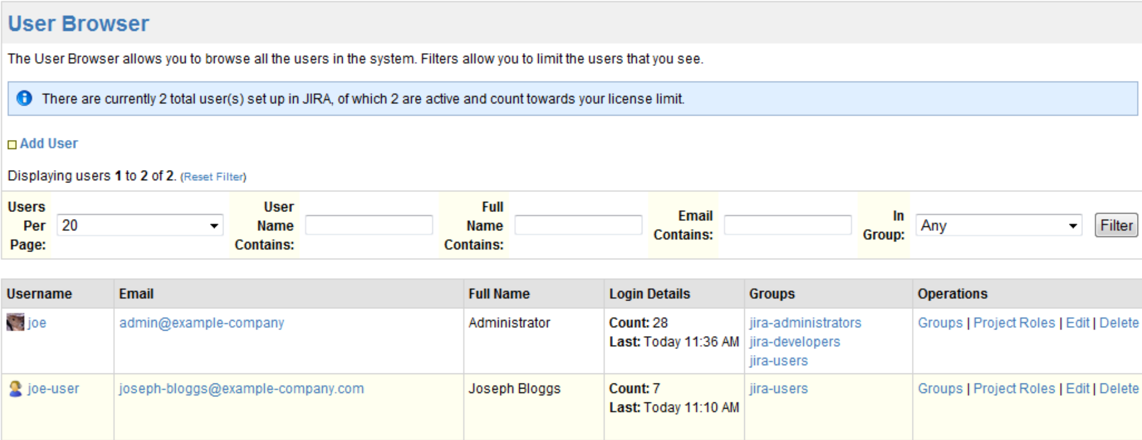
On this page:

- Viewing Users
- Adding a User
- Assigning a User to a Group
- Assigning a User to a Project Role
- Changing a User's Name or Email Address
- Changing a User's Password
- Adding a Property to a User
- Deactivating a User
- Deleting a User
- Notes

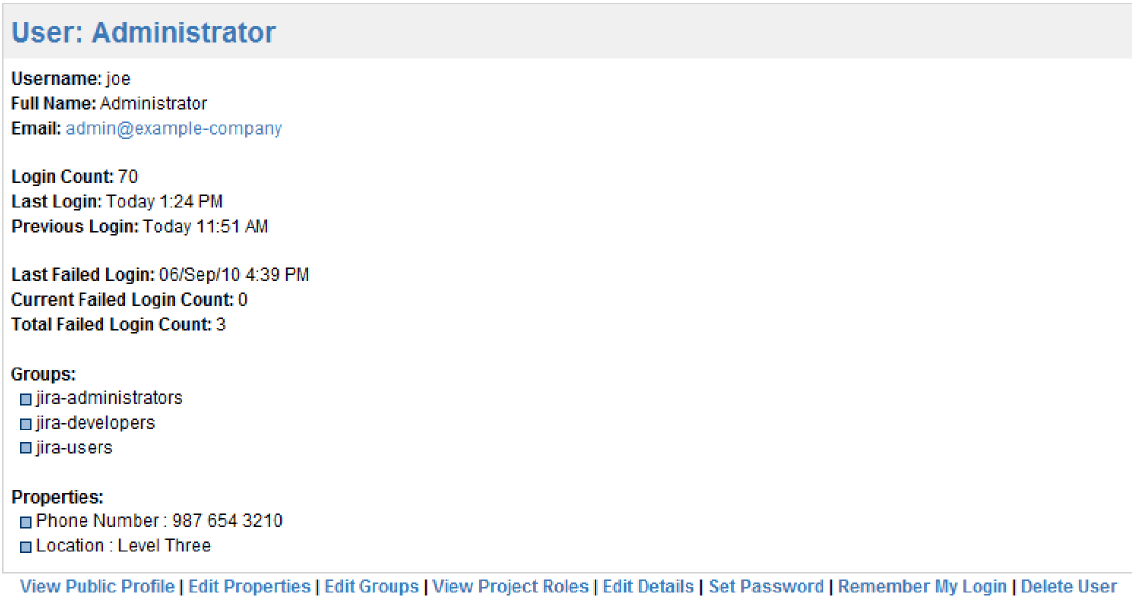
Viewing Users

To view a list of JIRA users:

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard.
3. Select **User Browser** from the **Users, Groups & Roles** section of the administration menu. This will display the **User Browser** screen:



4. To restrict the list of users shown in the **User Browser**, use the Filter form at the top of the User Browser. Specifying (part of) the user's email and/or group, then clicking the '**Filter**' button, will reduce the list to only those users who match those criteria.
5. To view details and login information about a user in the list, click their **Username** or **Email** Address.



Adding a User

1. Open the **User Browser** (see Viewing Users above) and click the '**Add User**' link. This will display the **Create New User** form.
2. Enter the **Username** (note that a user's **Username** cannot be changed once the user is created), **Password**, **Full Name** and **Email Address**.
3. Optionally, tick the **Send Password Email** box to send the user an email containing:
   - their login name; and
   - a link via which to set their password (this link is valid for 24 hours).
4. Click the **Create** button.

> Users can also be created via:
>
> - **Signup** — see Enabling Public Signup.
> - **Email** — e.g. you can use the CreateIssueHandler (see Services) to have JIRA create a user based on the sender's email address.

> If you have a user limited license (e.g. starter license) and have reached your user limit, any further users added will not have permission to log in to JIRA.

Assigning a User to a Group

When a user is created, they will be added to any groups that are set up to have new users automatically added to them.

To change a user's group membership:

1. Locate the user in the **User Browser** (see Viewing Users above) and click the **Groups** link in the **Operations** column.

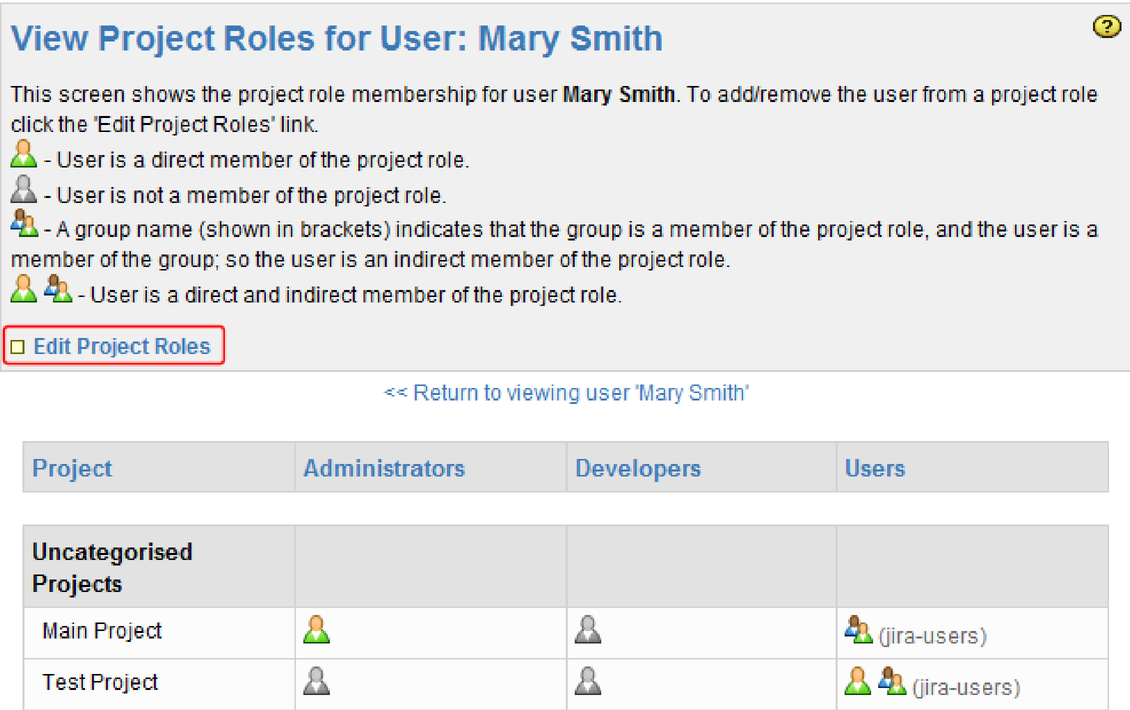
2. This will display two lists; the one on the left shows all available groups, and the one on the right shows all groups to which the user currently belongs. Use the **Join** and **Leave** buttons to add the user to or remove them from your selected group.

> If you have a user limited license (e.g. starter license) and have reached your user limit, you will not be able to assign any further users to groups with login permissions (i.e. jira-users permission) without first reducing the number of users with login permissions.

Assigning a User to a Project Role

Assigning a user to a project role enables them to fulfil a particular function in a particular project.

To view a user's project role membership, locate the user in the **User Browser** (see Viewing Users above) and click the **Project Roles** link in the **Operations** column. This will display a table showing all the projects and project roles that exist in JIRA, and the user's current project role membership for each project:



e.g. this screenshot shows that, for the 'Main Project' project:

- Mary is a member of the 'Administrators' project role.
- Mary is not a member of the 'Developers' project role.
- Mary is indirectly a member of the 'Users' project role, through being a member of the 'jira-users' group.
  (Also note that, for the 'Test Project' project, May is both a direct *and* an indirect member of the 'Users' project role.)

Click the **Edit Project Roles** button. The check boxes will then be available for you to select (to add the user to a project role) or clear (to remove the user from a project role).

Changing a User's Name or Email Address

1. Locate the user in the **User Browser** (see Viewing Users above) and click their **Edit** link in the **Operations** column. This displays a form where you can change the user's Full Name or Email Address.
2. Click **Update** to confirm the change.

Changing a User's Password

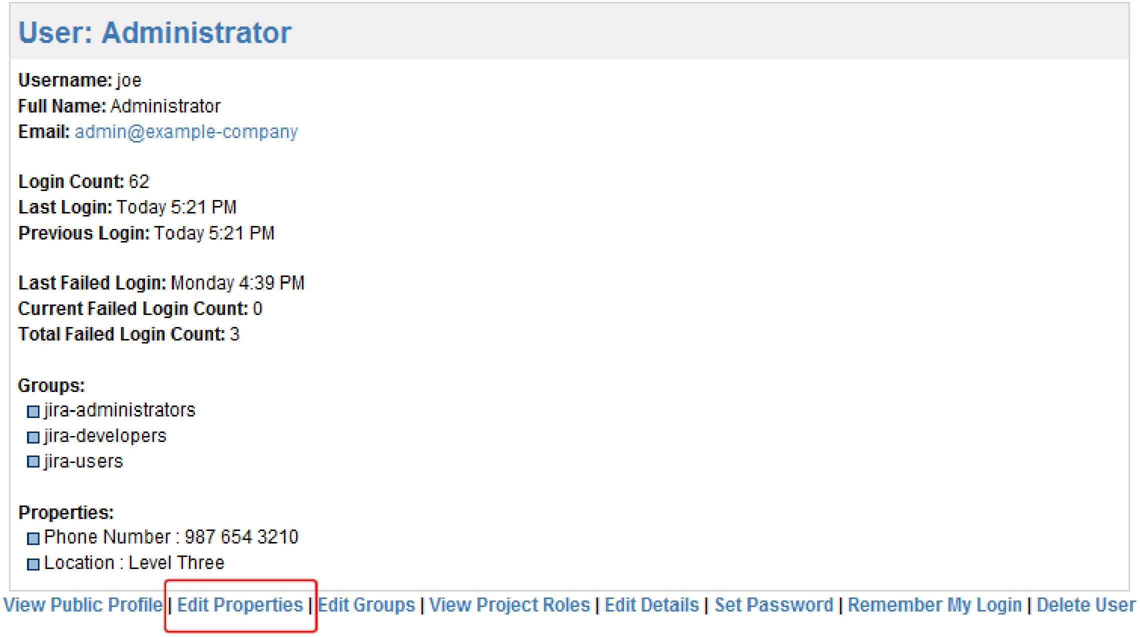
1. Locate the user in the **User Browser** (see Viewing Users above) and click their **Username**. This displays the user's details, below which are several links.
2. Click the **Set Password** link. This displays the **Set Password** screen.
3. Enter and confirm the new password.
4. Click the **Update** button.

Adding a Property to a User

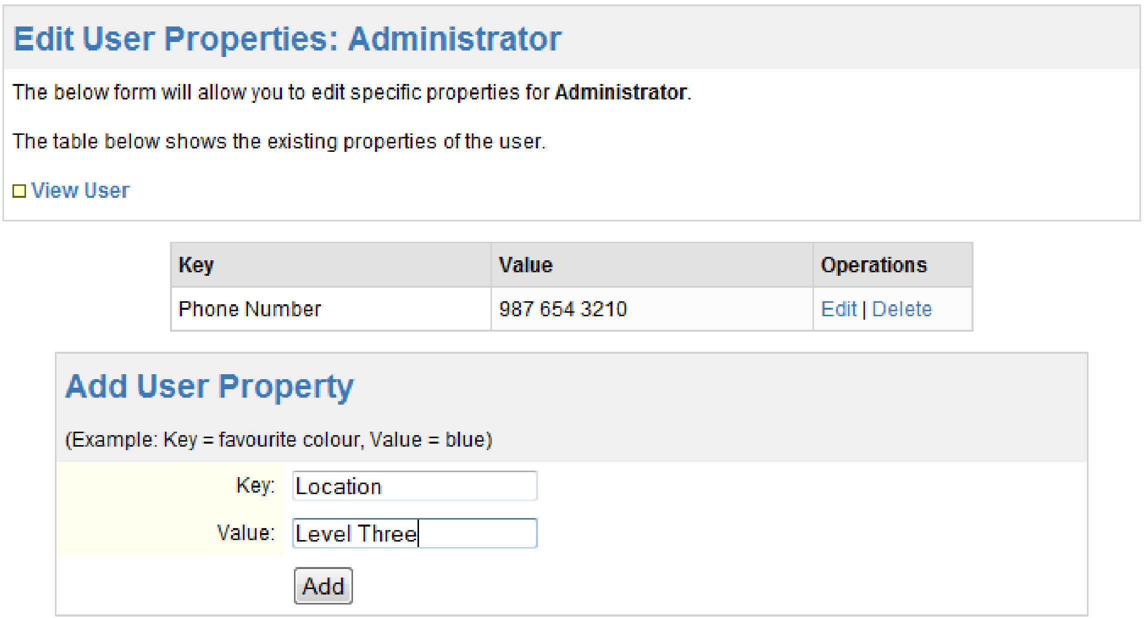
A **'Property'** is an extra piece of information that you can store regarding a user. A Property consists of a **Key** of your choice (eg. 'Phone number', 'Location') plus a corresponding **Value** (eg. '987 654 3210', 'Level Three').

To create a new Property for a user:

1. Locate the user in the **User Browser** (see Viewing Users above) and click their **Username**. This displays the user's details in a box.
2. Click the **Edit Properties** link below this box.



3. This displays the **Edit User Properties** screen, showing any previously-created properties:



4. Enter the new **Key** and its **Value,** then click the **Add** button.

Deactivating a User

Before you deactivate a user, you should:

- **Reassign any open issues assigned to that user**. You will need the '**Assign Issue**' permission to change the assignee for the issues.
- **Make sure the user is not the 'Default Assignee' for any project(s)**. You will need the '**Administer Project**' permission to change the Default Assignee for the project(s).

To deactivate a user account:

1. Remove the user from all groups. Read Managing Groups for more information.
2. Remove the user from all project roles. Read Managing Project Role Membership for more information.

Deactivating the user account will result in the following:

- the user will not count towards your **license limit**.
- **work log entries** associated with the user will remain.
- **filter subscriptions** will continue to be sent to the user — If this is a problem, you can change the user's email address in JIRA to an imaginary address, e.g. `user@example.com`.

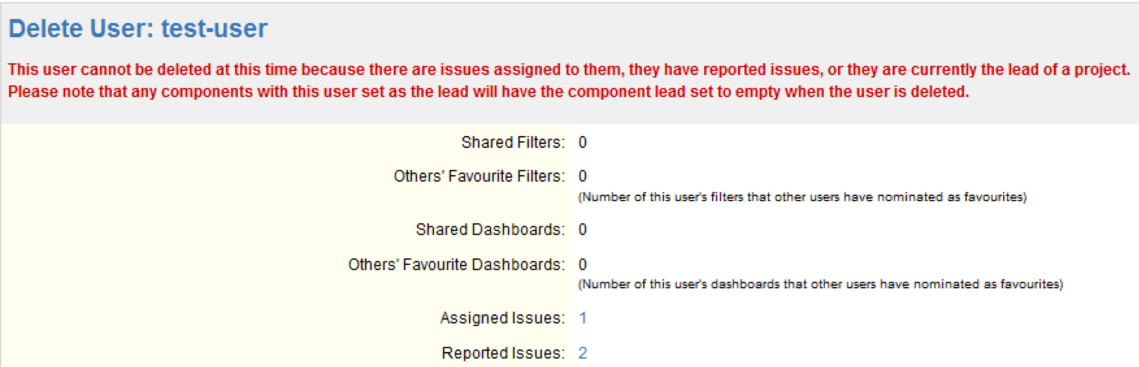
There is currently no *"disabled user"* user type in JIRA.

Deleting a User

Rather than deleting a user, we recommend that you **deactivate their account** instead (as described above). Deactivating a user's account will prevent that account from being used and prevent anyone from being able to log in to JIRA using that account. However, it will preserve that user's issues history.

Before you delete a user, you should bulk-edit the issues involved and **change the reporter** to someone else. You will need the **'Modify Reporter'** permission to change the reporter for the issues. You will also need to allow editing of closed issues if some of the issues the user created are closed and you do not wish to reopen them.

To delete a user:

1. Locate the user in the **User Browser** (see Viewing Users above) and click the **Delete** link in the **Operations** column.
2. The confirmation screen that follows will summarise any involvement of that user in the system by showing current issues assigned to and reported by that user, etc. These connections between the user and other parts of the system may prevent the deletion of that user. For example, attempting to delete a user called *test-user* results in the following screen, which prevents deletion due to the presence of one assigned and two reported issues:


As well as reassigning any issues, you may need to bulk-edit the issues created by the user and change the 'Reporter' to someone else. You'll need the 'Modify Reporter' permission to do this.
3. If there are no issues assigned to, or reported by the user, the confirmation screen will display a **Delete** button; click this to proceed with the deletion.

- Please note that the filters and dashboards of a user will be deleted when the user is deleted, regardless of whether the filters or dashboards are shared with other users.
- Any numbers of issues which have been reported by or assigned to the user you are attempting to delete, are respectively hyperlinked to a list of the individual issues (in the Issue Navigator).

Notes

- If you are using External User Management, you will not be able to create, edit or delete users from within JIRA; but you can still assign users to project roles, and create/edit/delete user properties.
- **Multiple user directories:**

  You may define multiple user directories in JIRA, so that JIRA looks in more than one place for its users and groups. For example, you may use the default JIRA **internal directory** and also connect to an **LDAP** directory server. In such cases, you can define the **directory order** to determine where JIRA looks first when processing users and groups.

  Here is a summary of how the directory order affects the processing:

  - The order of the directories is the order in which they will be searched for users and groups.
  - Changes to users and groups will be made only in the first directory where the application has permission to make changes.

  See Managing Multiple Directories.

Managing Groups

A JIRA group is a convenient way to manage a collection of users. Users can belong to many groups. Groups are used throughout JIRA; for example, they can:

- be granted global permissions.
- be used in project permission schemes.
- be used in email notification schemes.
- be used in issue security levels.
- be given access to issue filters.
- be given access to dashboards.
- be used in workflow conditions.
- belong to project roles *.

** Project roles are somewhat similar to groups, the main difference being that group membership is global whereas project role membership is project-specific.*

On this page:

- JIRA's default groups
- Viewing groups
- Adding a group
- Deleting a group
- Editing group membership
- Automatic group membership
- Notes

JIRA's default groups

When you install JIRA, three groups are automatically created:

- **jira-administrators** - typically contains people who are JIRA system administrators. By default, this group:
    - is a member of the **'Administrators'** project role.
    - has the **'JIRA Administrators'** and the **'JIRA System Administrators'** global permissions. (Note: if you need to give these permissions to separate people, you will need to create an additional group and grant the permissions separately, as described in *'About 'JIRA System Administrators' and 'JIRA Administrators''.*)
- **jira-developers** - typically contains people who perform work on issues. By default, this group:
    - is a member of the **'Developers'** project role.
    - has the **'Browse Users', 'Create Shared Filter'** and **'Manage Group Filter Subscriptions'** global permissions.
- **jira-users** - typically contains every JIRA user in your system. By default, this group:
    - is a member of the **'Users'** project role.
    - has the **'JIRA Users'** and **'Bulk Change'** global permissions.

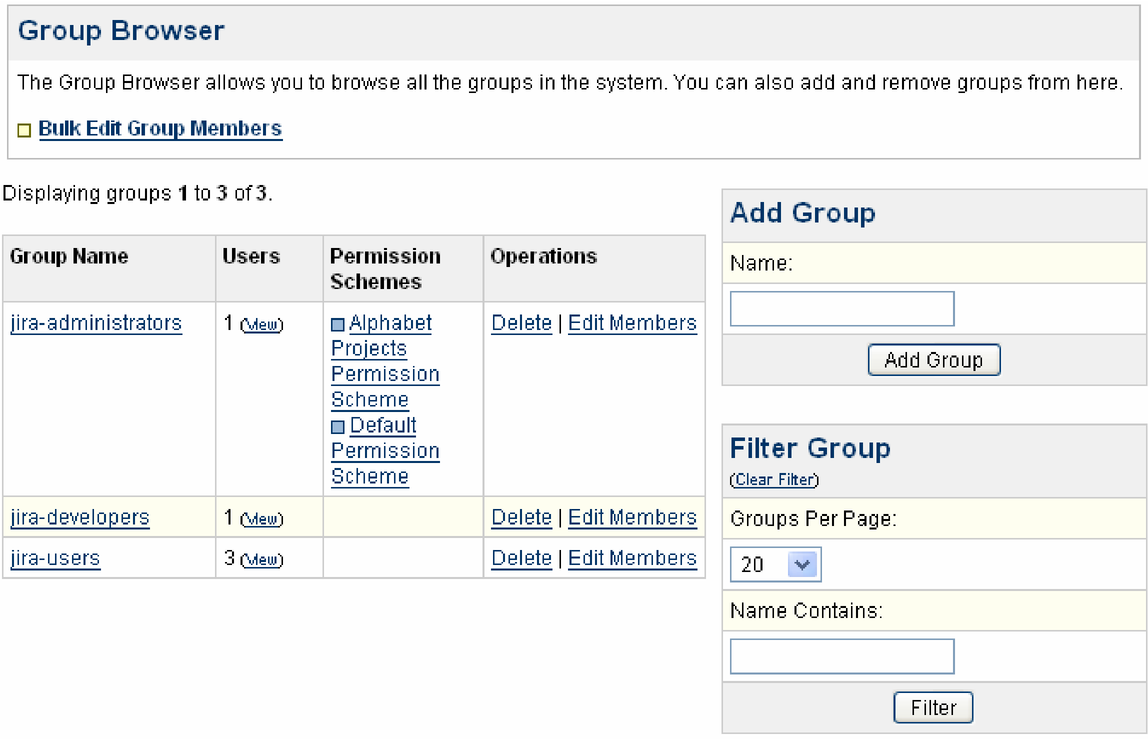
You can create and delete groups according to your organisation's requirements.

> If you are using External User Management, you will not be able to create, delete or edit groups or group membership from within JIRA; and 'Automatic Group Membership' (see below) will not apply. However, you can still assign groups to project roles.

Viewing groups

To see what groups exist, and where they are used:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **'Group Browser'** from the **'Users, Groups & Roles'** section of the 'Administration' menu.
4. You will then see a page containing the **'Group Browser'** as shown below.



The **'Filter Group'** form restricts the list of groups shown to those that match the **'Name Contains',** with a specified maximum per page. Click the **'Filter'** button to refresh the list with the restricting filter.

5. To see which permission schemes, email notification schemes, issue security levels and saved filters are using this group, click the group name.

Adding a group

To create a group, enter the new group **'Name'** in the **'Add Group'** form in the **'Group Browser'** (see *'Viewing groups'* above) and click the **'Add Group'** button.

Deleting a group

To delete a group, click the **'Delete'** link for that group in the **'Group Browser'** (see *'Viewing groups'* above). The confirmation screen that follows explains that users will be removed from the group through its deletion. Be aware of the impact this may have on users in that group. For example, if that group membership was the sole conveyor of a permission for a user, then the user will no longer have that permission.

Before deleting a group it is recommended that you check whether the groups is being used by any permission schemes, email notification schemes, issue security levels or saved filters. See *'Viewing groups'* (above).

Editing group membership

To edit a group's membership, click the **'Edit Members'** link in the row for that group in the **'Group Browser'** (see *'Viewing groups'* above). This takes you to a form allowing you to add users to or remove them from the group.

If the group has the **'JIRA System Administrators'** global permission, you cannot edit its membership unless you have the **'JIRA System Administrators'** global permission.

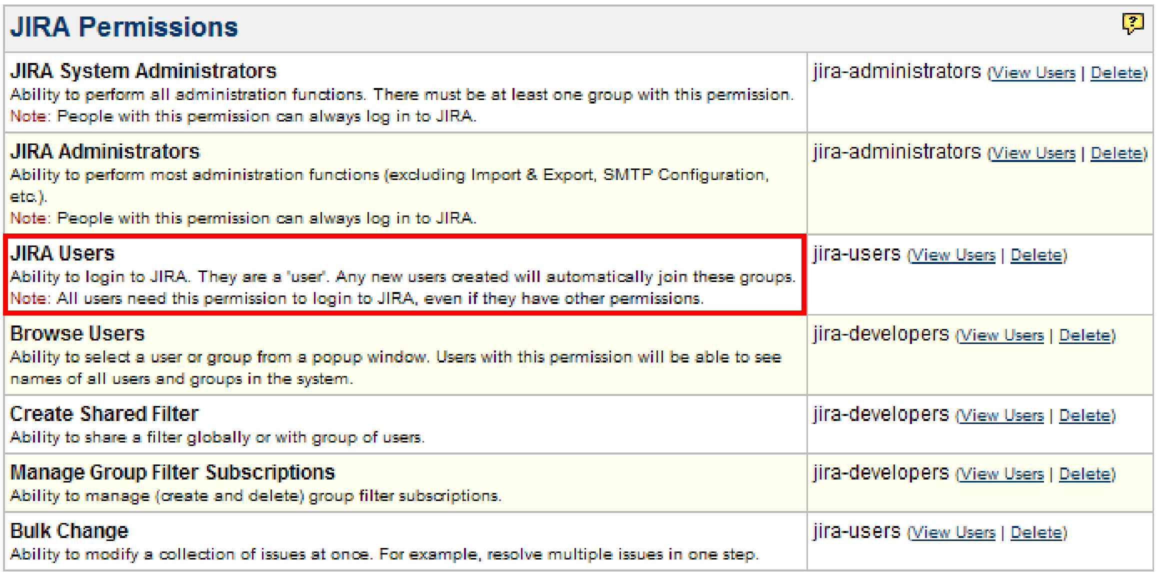
If you have a user limited license (e.g. personal license) and have reached your user limit, you will not be able to assign any further users to groups with login permissions (i.e. jira-users permission) without first reducing the number of users with login permissions.

Automatic group membership

To automatically add newly-created users to a particular group, grant the group the **'JIRA Users'** global permission.

To do this, navigate to the **'Administration'** section and select **'Global Permissions'** from the **'Global Settings'** menu. Add the **'JIRA**

Users' permission to the relevant group, as described in *'Granting global permissions'*.



JIRA Permissions	
JIRA System Administrators Ability to perform all administration functions. There must be at least one group with this permission. Note: People with this permission can always log in to JIRA.	jira-administrators (View Users | Delete)
JIRA Administrators Ability to perform most administration functions (excluding Import & Export, SMTP Configuration, etc.). Note: People with this permission can always log in to JIRA.	jira-administrators (View Users | Delete)
JIRA Users Ability to login to JIRA. They are a 'user'. Any new users created will automatically join these groups. Note: All users need this permission to login to JIRA, even if they have other permissions.	jira-users (View Users | Delete)
Browse Users Ability to select a user or group from a popup window. Users with this permission will be able to see names of all users and groups in the system.	jira-developers (View Users | Delete)
Create Shared Filter Ability to share a filter globally or with group of users.	jira-developers (View Users | Delete)
Manage Group Filter Subscriptions Ability to manage (create and delete) group filter subscriptions.	jira-developers (View Users | Delete)
Bulk Change Ability to modify a collection of issues at once. For example, resolve multiple issues in one step.	jira-users (View Users | Delete)

Notes

- **Multiple user directories:**

  You may define multiple user directories in JIRA, so that JIRA looks in more than one place for its users and groups. For example, you may use the default JIRA **internal directory** and also connect to an **LDAP** directory server. In such cases, you can define the **directory order** to determine where JIRA looks first when processing users and groups.

  Here is a summary of how the directory order affects the processing:

  - The order of the directories is the order in which they will be searched for users and groups.
  - Changes to users and groups will be made only in the first directory where the application has permission to make changes.

  See Managing Multiple Directories.

- **Nested groups:**

  Some directory servers allow you to define a group as a member of another group. Groups in such a structure are called 'nested groups'. If you are using groups to manage permissions, you can create nested groups to allow inheritance of permissions from one group to its sub-groups.

  See Managing Nested Groups.

Managing Project Roles

On this page:

- Using project roles
- JIRA's default project roles
- Viewing project roles
- Adding a project role
- Deleting a project role
- Editing a project role
- Assigning members to a project role
- Specifying 'default members' for a project role

Project roles are a flexible way to associate users and/or groups with particular projects. Project roles also allow for delegated administration:

- Global administrators define JIRA's project roles — that is, all projects have the same project roles available to them.
- Project administrators* assign members to project roles specifically for their project(s).

Project roles can be used in:

- permission schemes
- email notification schemes
- issue security levels
- comment visibility
- workflow conditions

Project roles can also be given access to:

- issue filters

- dashboards

Project roles are somewhat similar to groups, the main difference being that group membership is global whereas project role membership is project-specific. Additionally, group membership can only be altered by JIRA administrators, whereas project role membership can be altered by project administrators*.

> * A project administrator is someone who has the project-specific 'Administer Project' permission, but not necessarily the global 'JIRA Administrator' permission. A project administrator can also manage project role membership.

Using project roles

Project roles enable you to associate users with particular functions. For example, if your organisation requires all software development issues to be tested by a Quality Assurance person before being closed, you could do the following:

1. Create a project role called **Quality Assurance**.
2. Create a permission scheme called **Software Development,** in which you assign the ' Close Issue ' permission to the **Quality Assurance** project role.
3. Associate the **Software Development** permission scheme with all software development projects.
4. For each software development project, add the appropriate Quality Assurance people to the **Quality Assurance** project role.

> JIRA versions prior to 3.7 did not have project roles. If you previously used JIRA 3.6.x (or earlier), please see Using 'Scheme Tools' to migrate to Project Roles.

JIRA's default project roles

When you install JIRA, three project roles are automatically created:

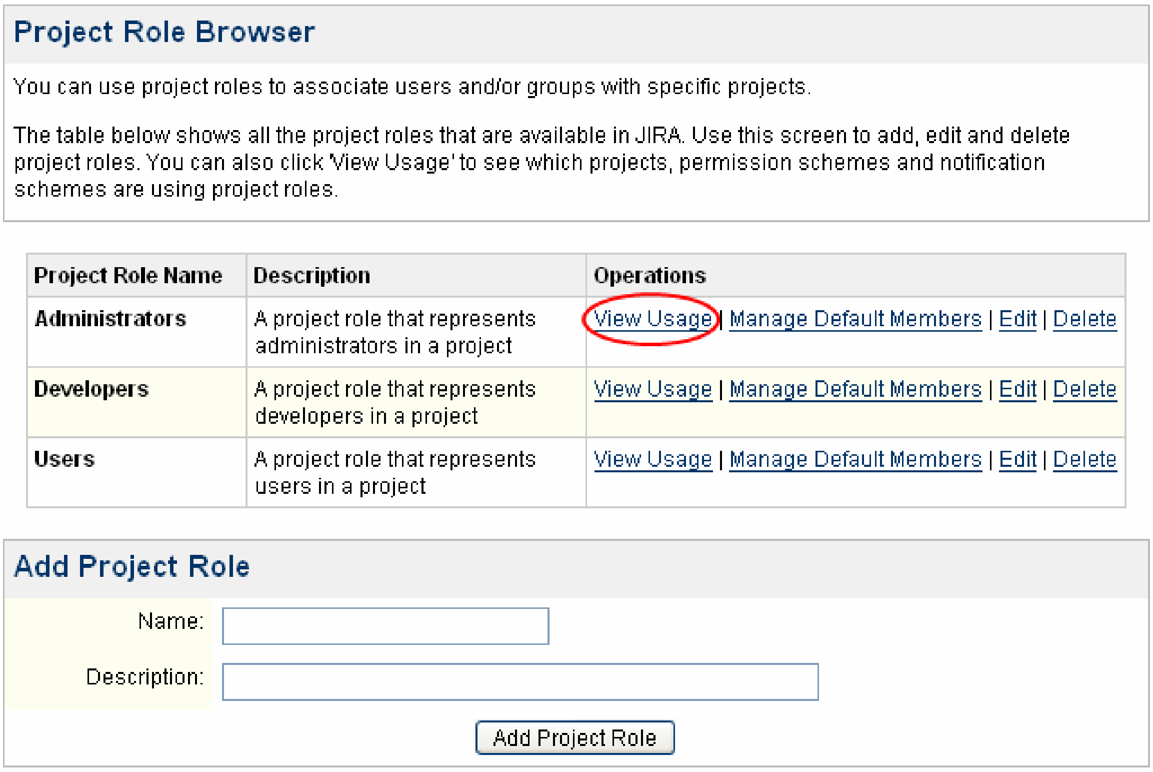
- **Administrators** — typically contains people who administer a given project.
- **Developers** — typically contains people who work on issues in a given project.
- **Users** — typically contains people who log issues in a given project.

You can create, edit and delete project roles according to your organisation's requirements.

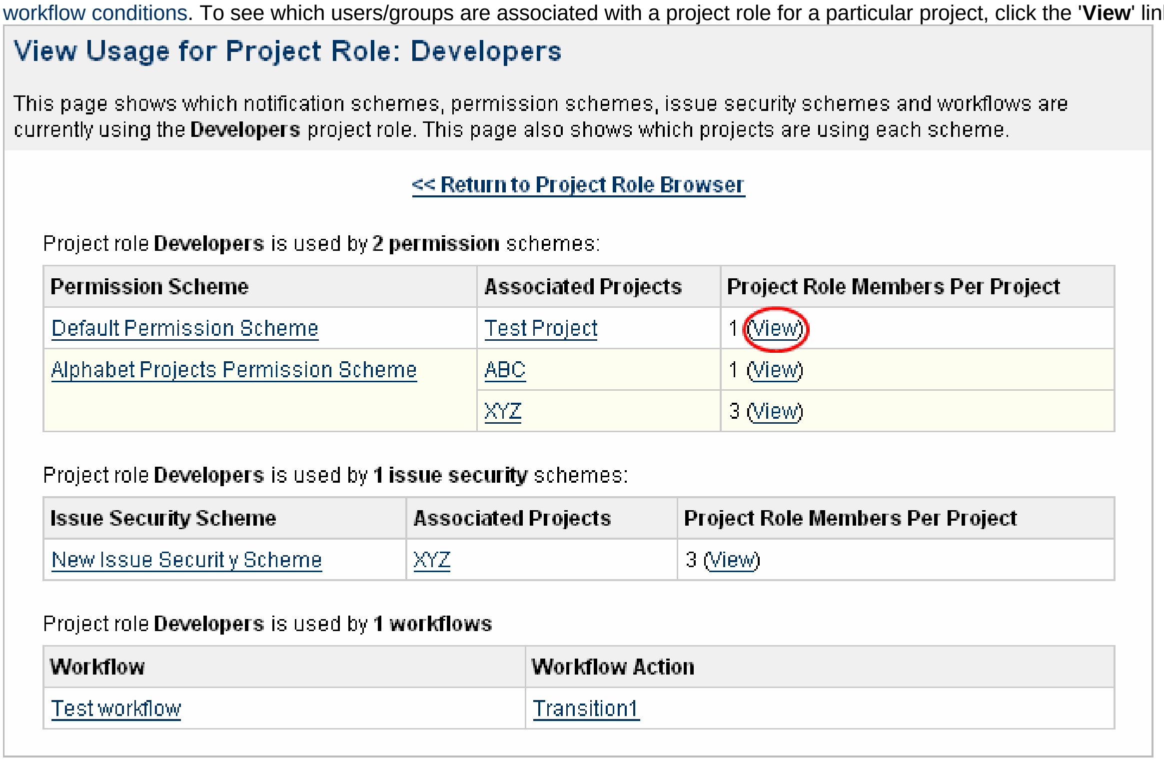
Viewing project roles

To see what project roles exist, and where they are used:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **'Project Role Browser'** from the **'Users Groups & Roles'** section of the **'Administration'** menu. You will then see the Project Role Browser, which contains a list of all the project roles in your JIRA system. To see where a project role is used, click the **'View Usage'** link:



4. This will display a list of the project role's associated permission schemes, email notification schemes, issue security levels and workflow conditions. To see which users/groups are associated with a project role for a particular project, click the '**View**' link:



Adding a project role

To define a new project role, enter its Name and a Description in the **'Add Project Role'** form in the Project Role Browser (see 'Viewing Project Roles' above), and click the **'Add Project Role'** button. Note that project role names must be unique.

Once a new project role is created, it is available to all projects. Project administrators can then assign members to the project role for their project (see Managing project role membership).

Deleting a project role

To delete a project role, locate the project role in the Project Role Browser (see 'Viewing Project Roles' above), and click the **'Delete'** link. The confirmation screen that follows lists any permission schemes, email notification schemes, issue security levels and workflow conditions that use the project role.

Note that deleting a project role will remove any assigned users and groups from that project role, for all projects. Be aware of the impact this may have; for example, if the project role membership was the sole conveyor of a permission for a user, then the user will no longer have that permission.

> If a project role has been used to specify who can view a comment, deleting the project role will mean that no-one can see that comment any more.

Editing a project role

To edit the **Name** and **Description** of a project role, locate the project role in the Project Role Browser (see 'Viewing Project Roles' above), and click the **'Edit'** link. This takes you to a form where you can modify the project role's **'Name'** and **'Description'**.

Assigning members to a project role

A project role's members are assigned on a project-specific basis. To assign users/groups to a project role for a particular project, please see Managing project role membership.

To see/edit *all* the project roles to which a particular user belongs, for all projects, click the '**Project Roles**' link in the User Browser.

Specifying 'default members' for a project role

The default members for a project role are users and groups that are initially assigned to the project role for all newly created projects. The actual membership for any particular project can then be modified by the project administrator.

The default members consist of the **Default Users** plus the **Default Groups** shown in the Project Role Browser (see 'Viewing Project Roles' above).

To add to the **Default Users** or the **Default Groups** for a project role, click the corresponding **'Edit'** link.

For example, if a user called Susie needs to have administration permissions for all newly created projects, you could add her to the **Default Users** for the 'Administrator' project role as follows:

1. Open the Project Role Browser.
2. Click the **'Manage Default Members'** link.
3. Click the **'Edit'** link in the **Administrators** column (next to *'None selected').*
4. In the 'Assign Default Users to Project Role' screen, click the '**User Picker**' icon.
5. Locate Susie in the 'User Picker' popup window, then click the '**Select**' button.
6. In the 'Assign Default Users to Project Role' screen, click the '**Add**' button.

> Changing a project role's default members does not affect the actual project role members for projects already created.

Migrating User Groups to Project Roles

Project roles are a flexible way of associating particular users and groups with a particular project.

On this page:

- Why migrate to Project Roles?
- Updating Permission Schemes and Notification Schemes to use Project Roles instead of Groups
- Minimising the number of Permission Schemes and Notification Schemes

Why migrate to Project Roles?

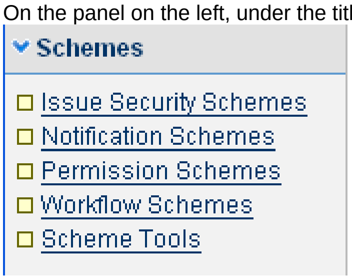
- **Ease of management** — JIRA versions prior to 3.7 did not have project roles. If you previously used JIRA 3.6.x (or earlier), your system may contain multiple, project-specific groups, permission schemes and notification schemes. By implementing project roles, you may be able to reduce the number of groups, permission schemes and notification schemes in your JIRA system. This can make your system easier to manage.
- **Delegated administration** — A project administrator (that is, someone who has the 'Administer Project' permission, but not necessarily the global 'JIRA Administrator' permission) can assign users and groups to project roles for their project. If their project's permission scheme and notification scheme are using project roles, the project administrator can control who may access their project and who receives email notifications.

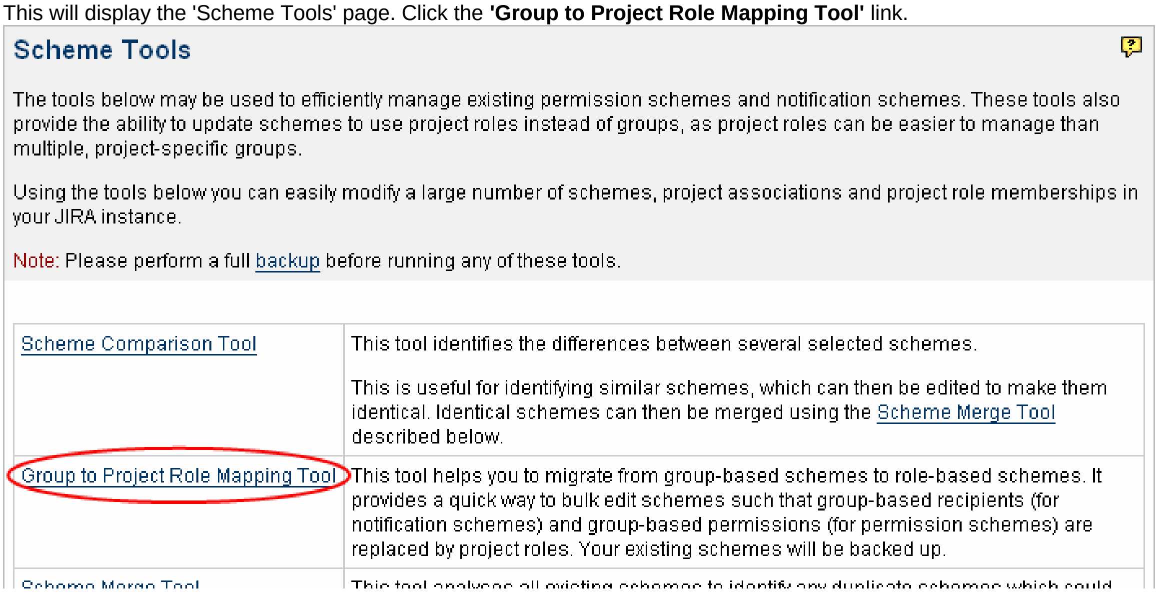
The instructions on this page will help you use Scheme Tools to:

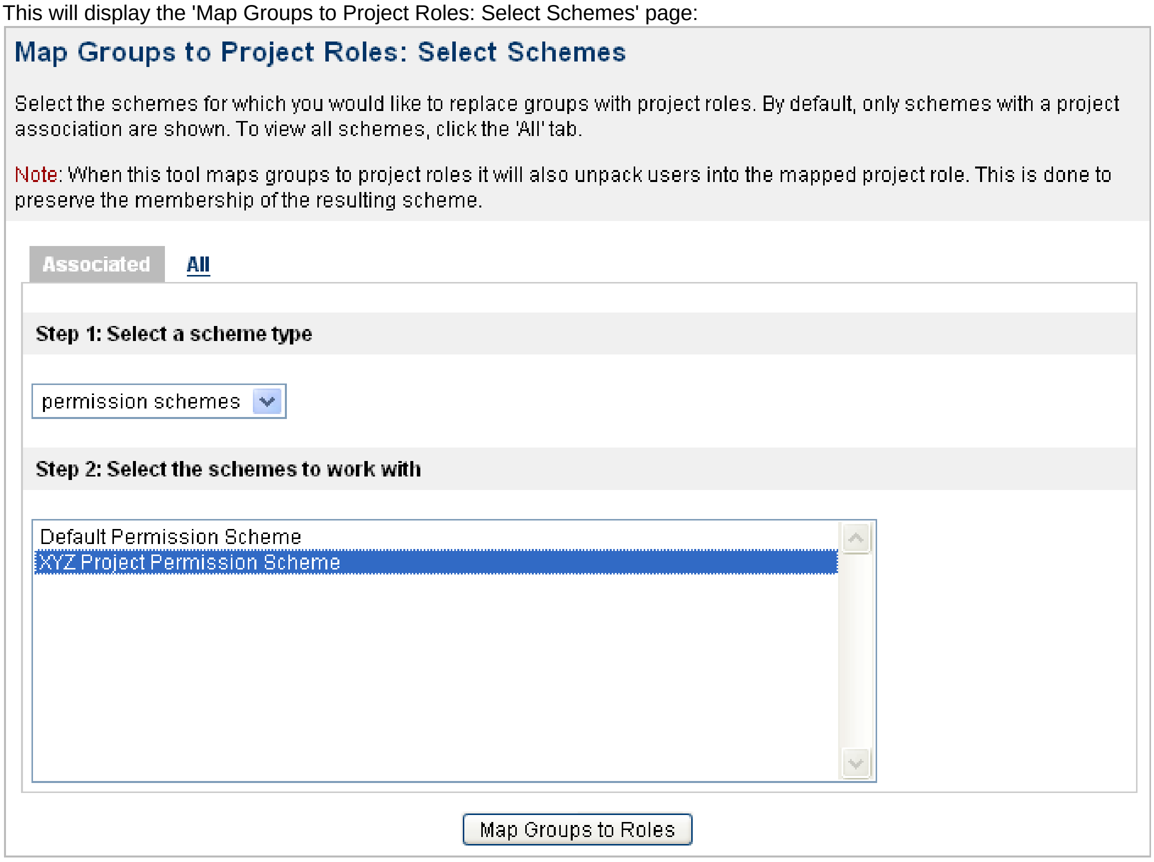
- update your permission schemes and notification schemes so that they use project roles instead of groups; then
- minimise the number of permission schemes and notification schemes in your JIRA system.

Updating Permission Schemes and Notification Schemes to use Project Roles instead of Groups

> **Backup your data**
> Before you begin, please perform a full backup.

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Schemes', click the link labelled '**Scheme Tools**'.


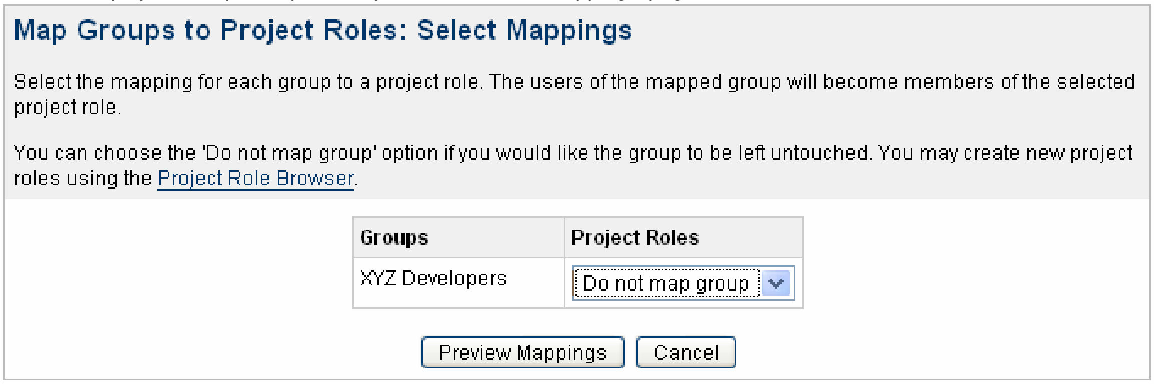
4. This will display the 'Scheme Tools' page. Click the **'Group to Project Role Mapping Tool'** link.


5. This will display the 'Map Groups to Project Roles: Select Schemes' page:


#* Note that schemes that are not associated with any projects need not usually be included in this process; but if you wish to select from all

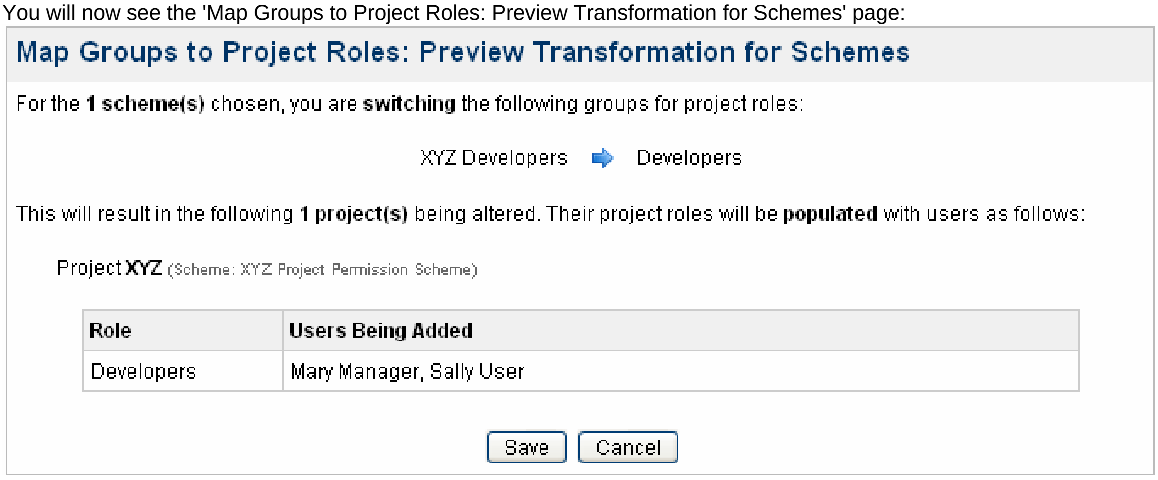
schemes in your system (including unused schemes), click '**All**'.
- Under **'Step 1: Select a scheme type',** select whether you want to update permission schemes or notification schemes. (You can only do one type of scheme at a time, but you can easily come back and do the other type later).
- Under **'Step 2: Select the schemes to work with',** select the schemes you want to update to use project roles instead of groups. You can use the **'Ctrl'** key to select multiple schemes.
- Click the '**Map Groups to Roles**' button.

6. This will display the 'Map Groups to Project Roles: Select Mappings' page:



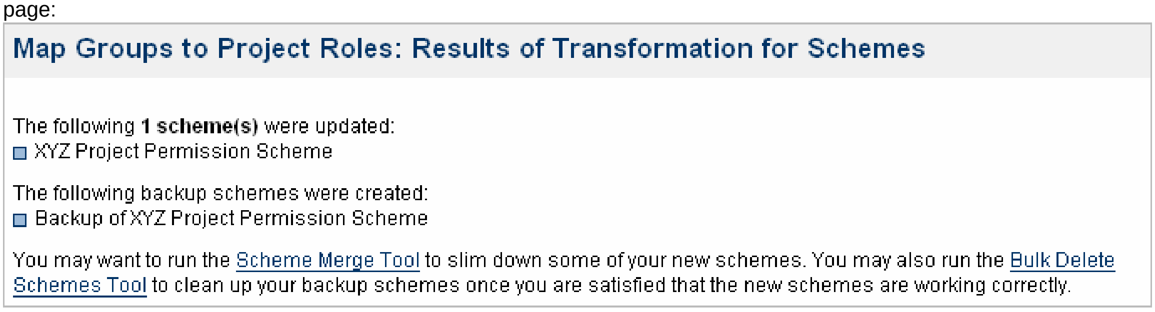
For each group, select the project role that will replace it; or, for any groups that you do not want to migrate, choose the '**Do not map group**' option. Then click the '"**Preview Mappings**' button.
- For ease of maintenance, it is recommended that you do not migrate any groups to which JIRA users are automatically added (that is, groups which have the 'JIRA Users' global permission). If you migrate these groups to project roles, and you still want all new users to have access to particular projects, you will need to manually add new users to the relevant project role for each project.

7. You will now see the 'Map Groups to Project Roles: Preview Transformation for Schemes' page:



If you are satisfied that the information shown on this page is correct, click the '**Save**' button to:
- create a backup of the scheme(s) that you selected in step 5 (you can later delete this backup scheme by using the 'Bulk Delete Schemes Tool', available from the 'Scheme Tools' page shown in step 4). This backup scheme will not be associated with any projects.
- update the scheme(s) that you selected in step 5 to use the role (left of the blue arrow) instead of the group (right of the blue arrow)
- add the users (in the right column of the table) to the project role (in the left column of the table) for each project that uses the scheme. This ensures that all users will continue to have the same permissions and notifications.

8. You will now see confirmation of the above changes on the 'Map Groups to Project Roles: Results of Transformation for Schemes' page:



After updating your permission schemes and notification schemes to use project roles instead of groups, you may find that many of your schemes are now very similar. To identify such schemes, merge them, and delete any redundant ones, please see Minimising the number of Permission Schemes and Notification Schemes (below).

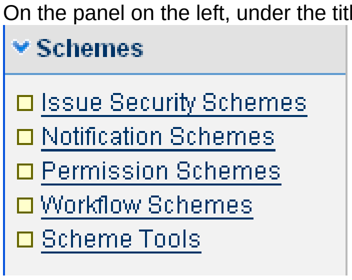
You may also find that some groups are no longer required. You can use the Group Browser to identify and delete groups that are not used by any permission schemes or notification schemes.

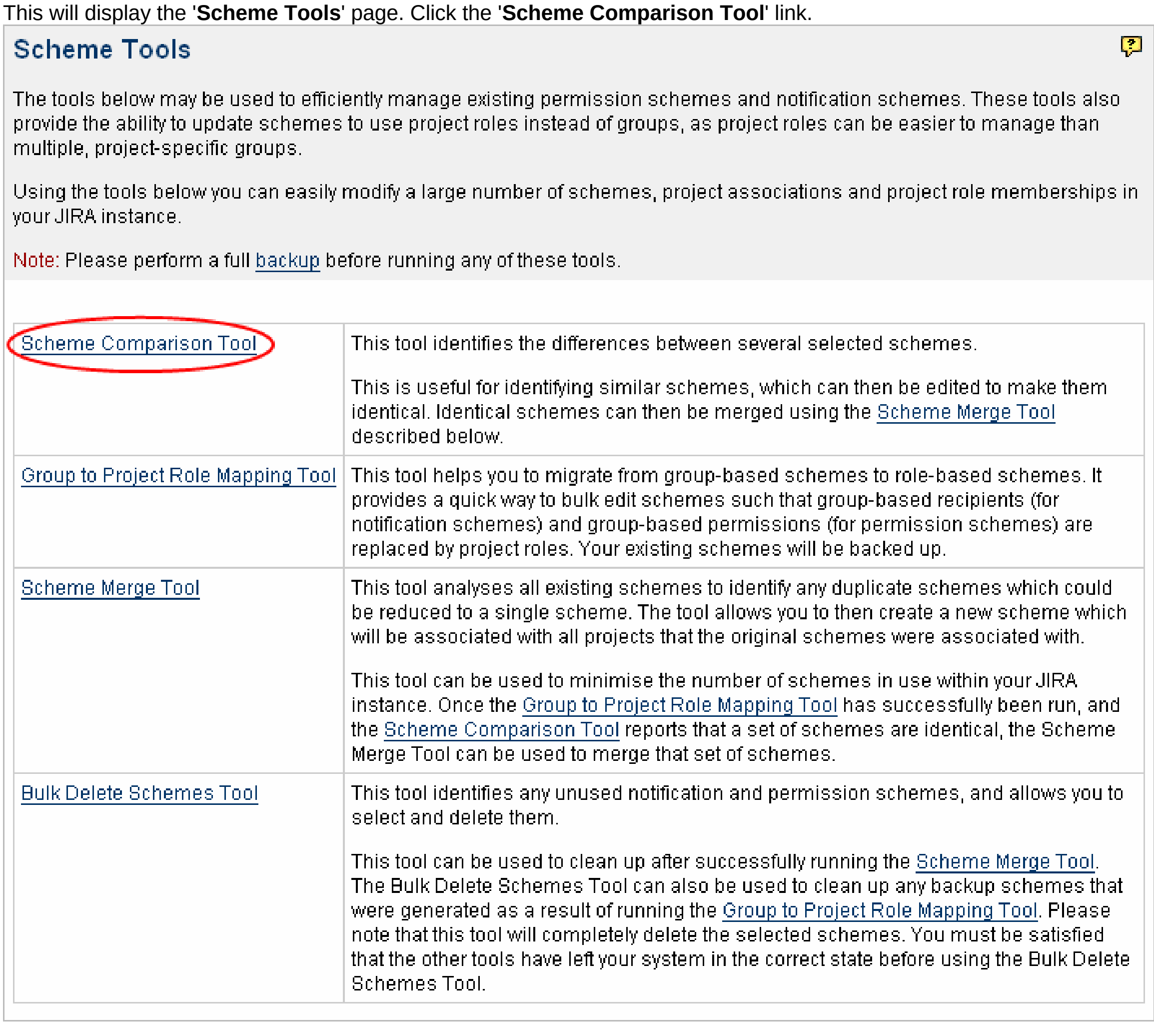
Minimising the number of Permission Schemes and Notification Schemes

Minimising the number of permissions schemes and notification schemes can make your JIRA system easier to manage. To identify and remove unnecessary schemes, follow the steps below:

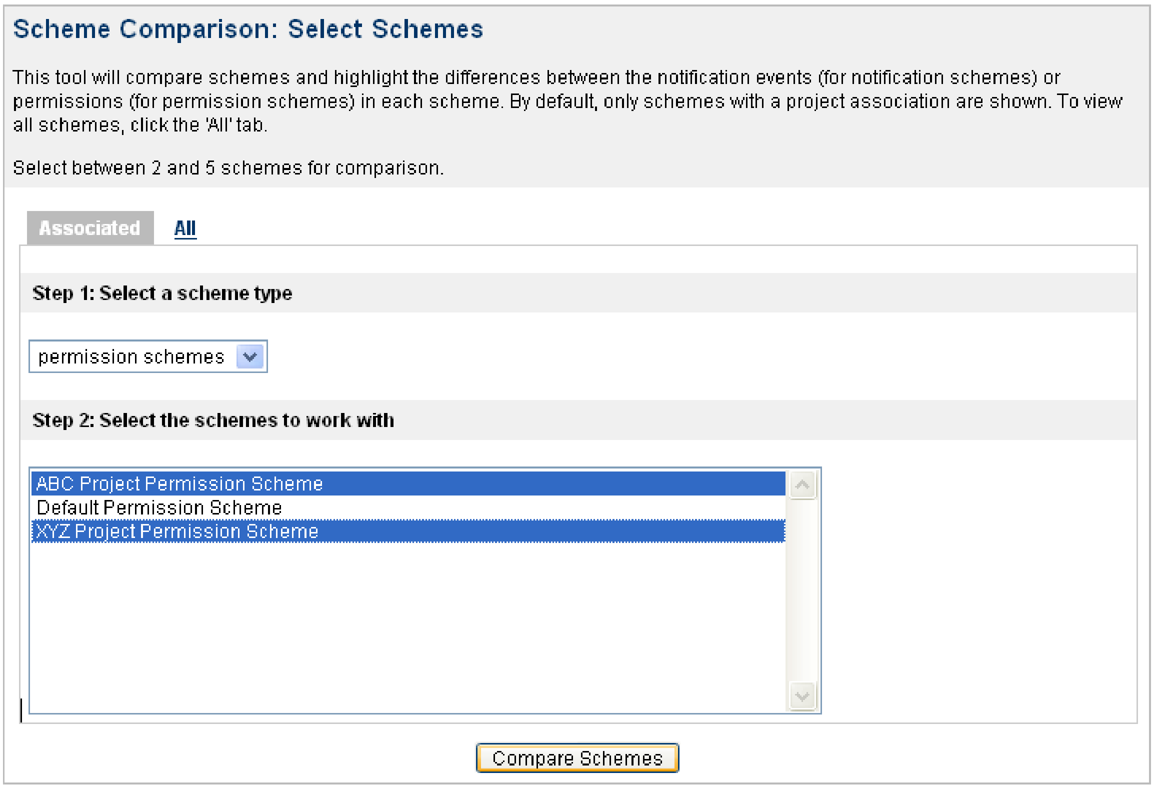
> Before you begin, please perform a full backup.

Log in as a user with the **'JIRA Administrators'** global permission.

1. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
2. On the panel on the left, under the title '**Schemes**', click the link labelled '**Scheme Tools**'.


3. This will display the '**Scheme Tools**' page. Click the '**Scheme Comparison Tool**' link.


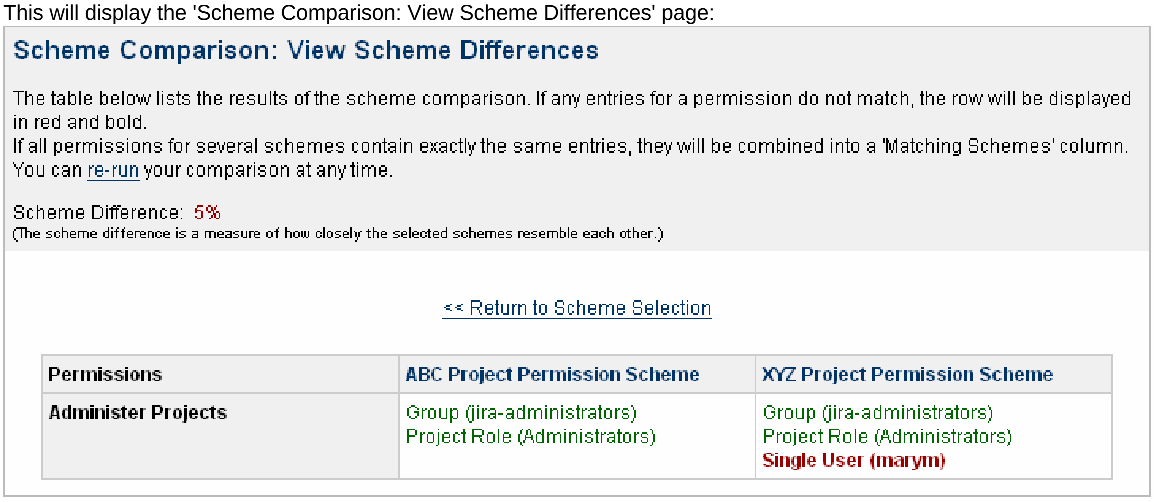
#* The Scheme Comparison Tool assists you in identifying similar schemes, and if appropriate, making them identical.
    - Identical schemes can later be merged using the Merge Duplicate Schemes Tool (see step 9 below).
4. This will display the '"**Scheme Comparison: Select Schemes**' page:



#* Note that schemes which are not associated with any projects need not usually be included in this process; but if you wish to select from all schemes in your system (including unused schemes), click '**All**'.

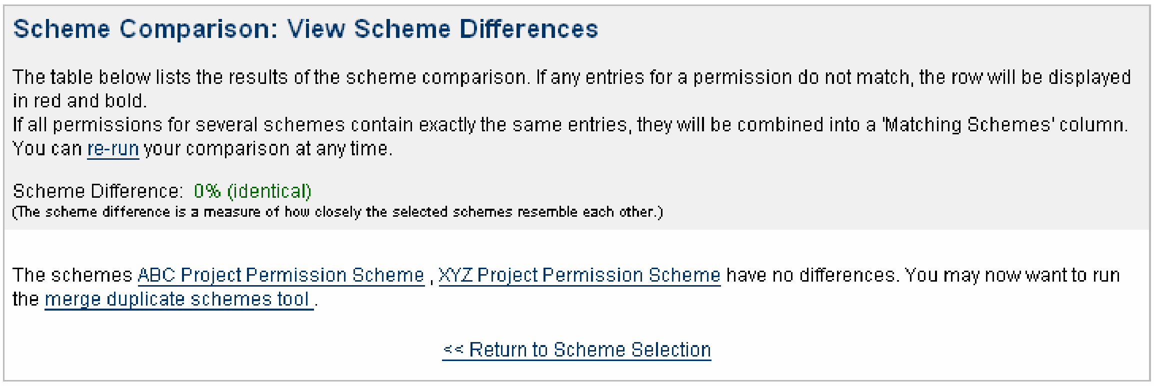
- Under '**Step 1: Select a scheme type',** select whether you want to compare permission schemes or notification schemes. (You can only do one type of scheme at a time, but you can easily come back and do the other type later.)
- Under **Step 2: Select the schemes to work with,** select the schemes you want to compare. Select at least 2 (and no more than 5) schemes, using the **'Ctrl'** key to select multiple schemes.
- Click the '**Compare Schemes**' button.

5. This will display the 'Scheme Comparison: View Scheme Differences' page:

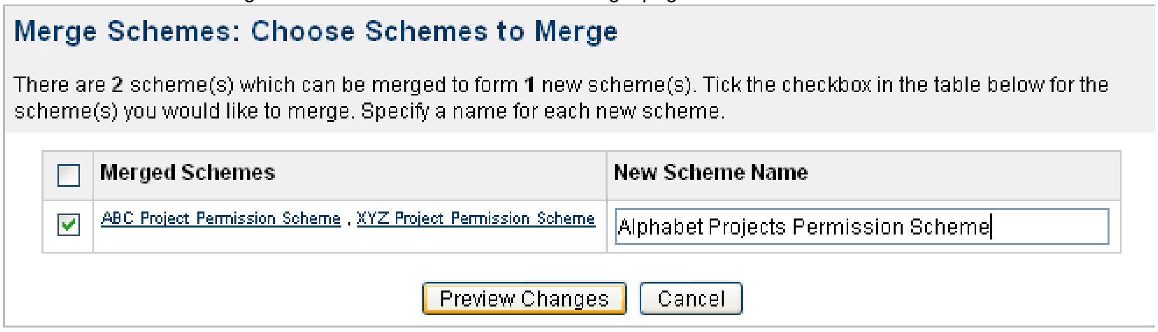


#* Only the **differences** between the selected schemes are displayed. For example, in the screenshot above, only the "Administer Projects" permission is displayed; this means that all the other permissions in these two permission schemes ("ABC Project Permission Scheme" and "XYZ Project Permission Scheme") are identical.

6. If you decide it is appropriate to edit a scheme to make it the same as another one, you can edit the scheme by clicking the scheme name. For example, it may be appropriate to delete **Single User (marym)** from the "XYZ Project Permission Scheme" if she is a member of the "Administrators" project role for the XYZ project.
7. Then repeat the steps above, and verify that you have achieved a batch of 2 or more identical permission schemes, e.g.

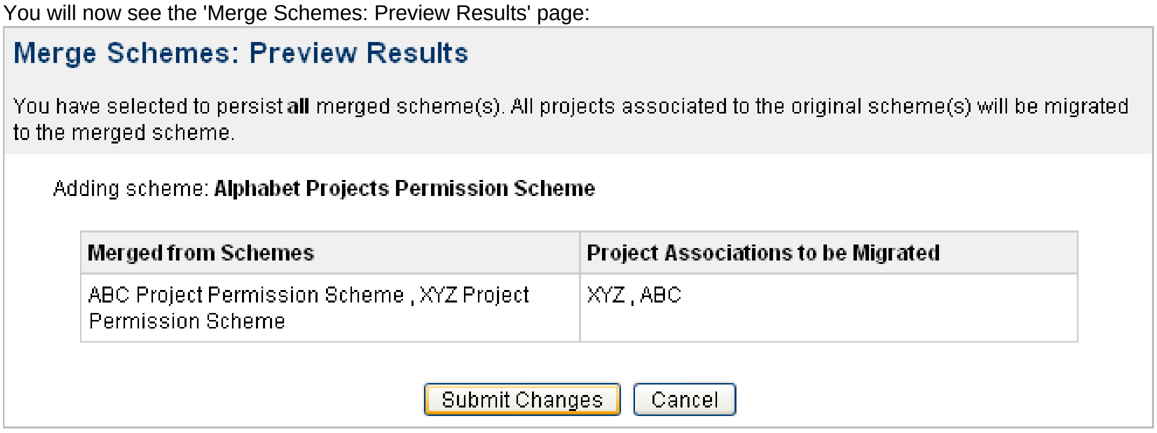


8. Click the '**Merge Duplicate Schemes Tool**' link. (Note: this link is also available from the 'Scheme Tools' page shown in step 4).
9. You will now see the 'Merge Schemes: Choose Schemes to Merge' page:



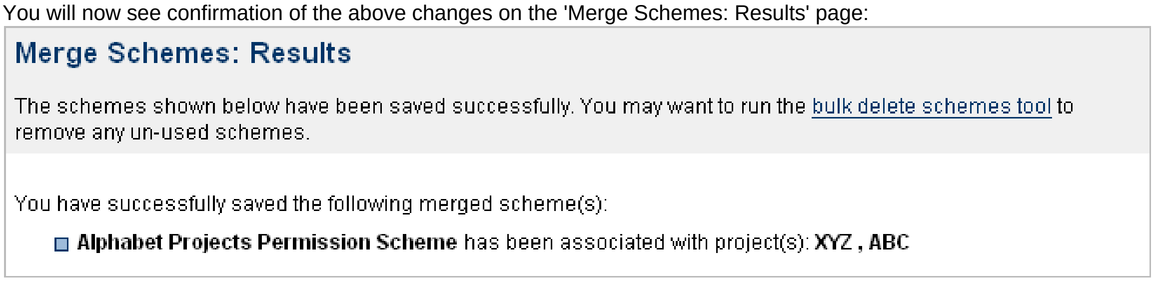
If you decide it is appropriate to merge the displayed schemes:
- Check the box next to the scheme names.
- Type a name for the new scheme in the '**New Scheme Name**' box.
- Click the '**Preview Changes**' button.

10. You will now see the 'Merge Schemes: Preview Results' page:

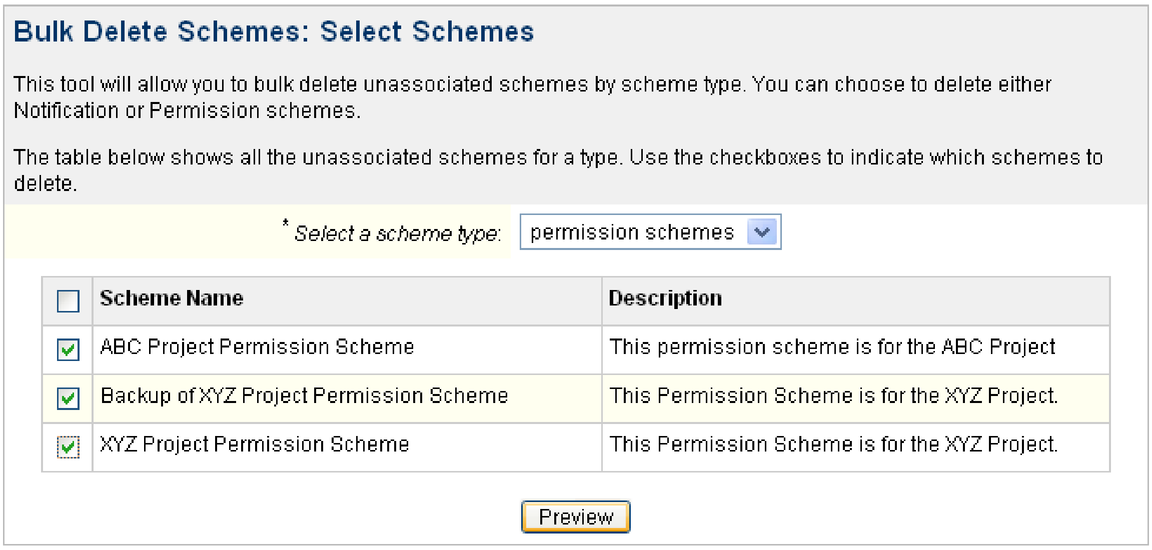


If you are satisfied that the information shown on this page is correct, click the '**Submit Changes**' button to:
- create the new scheme whose name is shown in bold.
- associate the projects (in the right column of the table) with the new scheme.
- disassociate the existing schemes (in the left column of the table) from the projects. These schemes can then be deleted using the 'Bulk Delete Schemes Tool' (see step 15).

11. You will now see confirmation of the above changes on the 'Merge Schemes: Results' page:



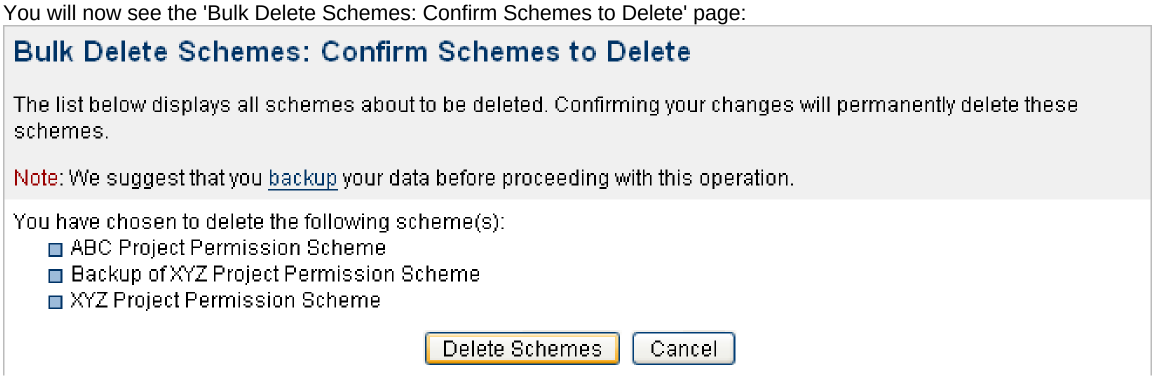
12. Click the '**Bulk Delete Schemes Tool**' link. (Note: this link is also available from the 'Scheme Tools' page shown in step 4).
13. You will now see the '**Bulk Delete Schemes: Select Schemes**' page:



If you decide it is appropriate to delete the displayed schemes:

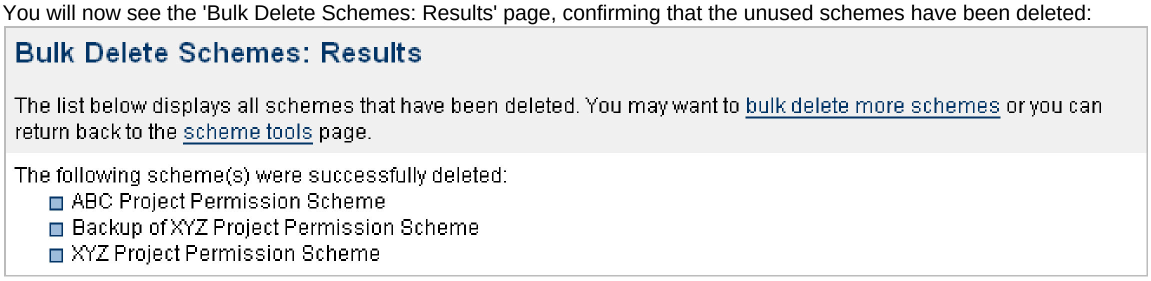
- Check the box next to the scheme names.
- Type a name for the new scheme in the "New Scheme Name" box.
- Click the '"**Preview**' button. Note that deleting these schemes will not affect any projects, as this page only displays schemes that are not associated with projects.

14. You will now see the 'Bulk Delete Schemes: Confirm Schemes to Delete' page:



If you are satisfied that the information shown on this page is correct, click the '**Delete Schemes**' button.

15. You will now see the 'Bulk Delete Schemes: Results' page, confirming that the unused schemes have been deleted:



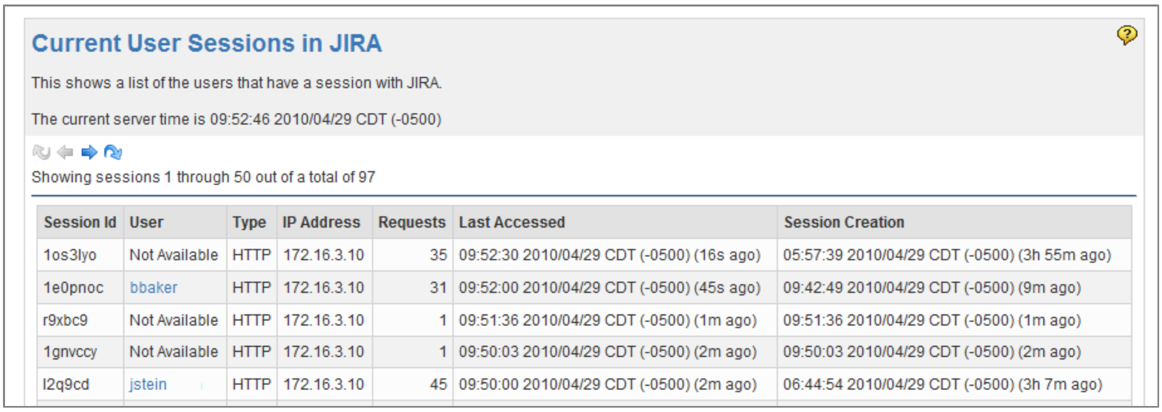
Viewing User Sessions

JIRA provides a list of users who are currently accessing JIRA. This is useful if you need to know who to contact before planned downtime, for example.

Viewing Current User Sessions

To view a list of current JIRA user sessions:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select **User Sessions** from the **System** section of the administration menu. This will display the '**Current User Sessions in JIRA**' screen:



Session Id	User	Type	IP Address	Requests	Last Accessed	Session Creation
1os3lyo	Not Available	HTTP	172.16.3.10	35	09:52:30 2010/04/29 CDT (-0500) (16s ago)	05:57:39 2010/04/29 CDT (-0500) (3h 55m ago)
1e0pnoc	bbaker	HTTP	172.16.3.10	31	09:52:00 2010/04/29 CDT (-0500) (45s ago)	09:42:49 2010/04/29 CDT (-0500) (9m ago)
r9xbc9	Not Available	HTTP	172.16.3.10	1	09:51:36 2010/04/29 CDT (-0500) (1m ago)	09:51:36 2010/04/29 CDT (-0500) (1m ago)
1gnvccy	Not Available	HTTP	172.16.3.10	1	09:50:03 2010/04/29 CDT (-0500) (2m ago)	09:50:03 2010/04/29 CDT (-0500) (2m ago)
l2q9cd	jstein	HTTP	172.16.3.10	45	09:50:00 2010/04/29 CDT (-0500) (2m ago)	06:44:54 2010/04/29 CDT (-0500) (3h 7m ago)

The session id shown is also used in the JIRA access log and `atlassian-jira.log`.

It is possible to have "sessions" for computers that are not logged in. For example, when someone accesses JIRA without logging in, a unique session is created without a username (this is shown as 'Not Available' in the 'User' column).

To administer a user, click a username to go to the user's Profile, then select '**Administer User**' from the '**Tools**' menu.

User access logging

As of JIRA 4.1, some of this functionality is now available via the Administration interface. Please see Viewing User Sessions for more details.

Occasionally one wishes to get an overall picture of *which* users are accessing *which* pages in JIRA. Application servers are able to log the requested URL, but (it seems) they cannot determine the currently logged in user (probably because they run before the Seraph filter has a chance to set request.getRemoteUser()).

Similar to Confluence, JIRA 3.3 and above has a built-in URL logging mechanism, which shows the user and URL invoked:

```
2005-07-15 18:10:19,276 INFO [JIRACOM:jira.web.filters.AccessLogFilter] AccessLogFilter
initialized. Format is: <user> <url> <starting memory free (kb)> +- <difference in free mem (kb)>
<query time (ms)>
2005-07-15 18:10:20,523 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/secure/admin/jira/ViewLogging.jspa 109687-110 35
2005-07-15 18:10:20,523 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/secure/admin/jira/ViewLogging.jspa 109687-110 35
2005-07-15 18:15:59,709 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/secure/IssueNavigator.jspa 115762-3000 2385
2005-07-15 18:15:59,709 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/secure/IssueNavigator.jspa 115762-3000 2385
2005-07-15 18:26:53,916 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/logout 108756 1
2005-07-15 18:26:53,916 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/logout 108756 1
2005-07-15 18:26:54,306 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/secure/Logout!default.jspa 116660-2809 279
2005-07-15 18:26:54,306 INFO [JIRACOM:jira.web.filters.AccessLogFilter] joe
http://localhost:8090/jira/secure/Logout!default.jspa 116660-2809 279
2005-07-15 18:27:01,380 INFO [JIRACOM:jira.web.filters.AccessLogFilter] -
http://localhost:8090/jira/default.jsp 116393-512 42
2005-07-15 18:27:01,380 INFO [JIRACOM:jira.web.filters.AccessLogFilter] -
http://localhost:8090/jira/default.jsp 116393-512 42
2005-07-15 18:27:01,472 INFO [JIRACOM:jira.web.filters.AccessLogFilter] -
http://localhost:8090/jira/secure/Dashboard.jspa 115881-809 87
2005-07-15 18:27:01,472 INFO [JIRACOM:jira.web.filters.AccessLogFilter] -
http://localhost:8090/jira/secure/Dashboard.jspa 115881-809 87
```

Here you can see user 'joe' enable access logging, then log out, and view the dashboard anonymously.

Usage in JIRA 3.x

URL logging is disabled in JIRA by default. To turn it on, go to **Admin -> System -> Logging & Profiling**, and change the log level for AccessLogFilter from `WARN` to `INFO`. To make this change permanent, you would need to edit the corresponding section in `WEB-INF/classes/log4j.properties` on disk, changing:

```
log4j.category.com.atlassian.jira.web.filters.AccessLogFilter = WARN, console, filelog
log4j.additivity.com.atlassian.jira.web.filters = false
```

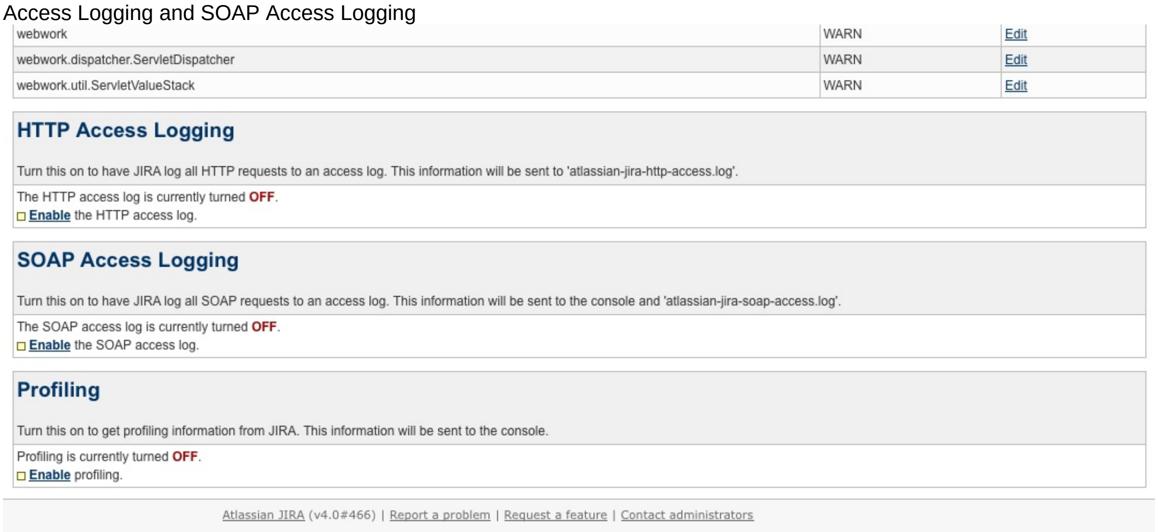
to:

```
log4j.category.com.atlassian.jira.web.filters.AccessLogFilter = INFO, console, filelog
log4j.additivity.com.atlassian.jira.web.filters = false
```

and then restart JIRA.

Usage in JIRA 4.x

URL logging is disabled in JIRA by default. To turn it on, go to **Admin -> System -> Logging & Profiling**, and click the **Enable** link on HTTP Access Logging and SOAP Access Logging



Note, the user access logs are not outputted to the atlassian-jira.log file, the http logs are written to <JIRA>/atlassian-jira-http-access.log and SOAP logs are written to <JIRA>/atlassian-jira-soap-access.log

Tomcat access logging

Tomcat (used in JIRA Standalone) can also produce access logs. These are enabled by default in JIRA Standalone, and result in `logs/access_log.<date>.log` files being generated. If you are not using JIRA Standalone, Tomcat access logging may be enabled in `conf/server.xml`, by adding the following line before `</Context>`:

```
<Valve className="org.apache.catalina.valves.AccessLogValve" pattern="%h %l %u %t &quot;%r&quot;
%s %b %T %S" resolveHosts="false" />
```

You will need to restart JIRA for the changes to take effect.

The Apache Tomcat Access Log Valve documentation describes each of the above parameters.

This will generate logs that include the IP address, like:

```
127.0.0.1 - - [19/Oct/2006:12:38:09 +0800] "GET / HTTP/1.1" 302 - 0.240 -
127.0.0.1 - - [19/Oct/2006:12:38:09 +0800] "GET / HTTP/1.1" 302 - 0.243 -
127.0.0.1 - - [19/Oct/2006:12:38:11 +0800] "GET /secure/Setup!default.jspa HTTP/1.1" 302 - 1.732
39F9C7F048F7F060A4B9883A7348082D
127.0.0.1 - - [19/Oct/2006:12:38:16 +0800] "GET
/secure/Setup!input.jspa?title=Your+Company+JIRA&mode=public HTTP/1.1" 200 24678 4.885
39F9C7F048F7F060A4B9883A7348082D
127.0.0.1 - - [19/Oct/2006:12:38:24 +0800] "GET /styles/global.css HTTP/1.1" 200 548 0.213
39F9C7F048F7F060A4B9883A7348082D
127.0.0.1 - - [19/Oct/2006:12:38:26 +0800] "GET
/secure/Setup!input.jspa?title=Your+Company+JIRA&mode=public HTTP/1.1" 200 24678 0.443
39F9C7F048F7F060A4B9883A7348082D
127.0.0.1 - - [19/Oct/2006:12:38:26 +0800] "GET /styles/global.css HTTP/1.1" 200 548 0.001
39F9C7F048F7F060A4B9883A7348082D
127.0.0.1 - - [19/Oct/2006:12:38:28 +0800] "GET /includes/js/combined-javascript.js HTTP/1.1" 200
65508 1.712 39F9C7F048F7F060A4B9883A7348082D
127.0.0.1 - - [19/Oct/2006:12:38:28 +0800] "GET /includes/js/combined-javascript.js HTTP/1.1" 200
65508 4.386 39F9C7F048F7F060A4B9883A7348082D
```

Related pages

Page: Logging JIRA SQL Queries (JIRA 4.3)

Clearing 'Remember my login' Tokens

On this page:

- Introduction
- Clearing 'Remember my login' Tokens from a User Profile
- Clearing a User's 'Remember my login' Tokens from the Administration Console
- Clearing *all* 'Remember my login' Tokens from the JIRA site

Introduction

When a user logs in to a JIRA site, they have the option of making JIRA remember their login on a specific computer and browser, by selecting the '**Remember my login...**' check box before they click the '**Log In**' button. Upon doing so, a 'Remember my login' token is stored by the JIRA server and a cookie containing this token is set in the user's browser.

A user who revisits a JIRA site from the same computer and browser, will automatically be logged in *if* JIRA detects that one of the user's 'Remember my login' tokens has a matching token contained in one of that browser's cookies. If the user logs out of JIRA, the 'Remember my login' token (which matches the relevant browser cookie) is cleared from the JIRA server.

To maximise and maintain the security of your JIRA site, JIRA provides features for:

- clearing 'Remember my login' tokens associated with individual user accounts and
- clearing *all* 'Remember my login' tokens stored by your JIRA site.

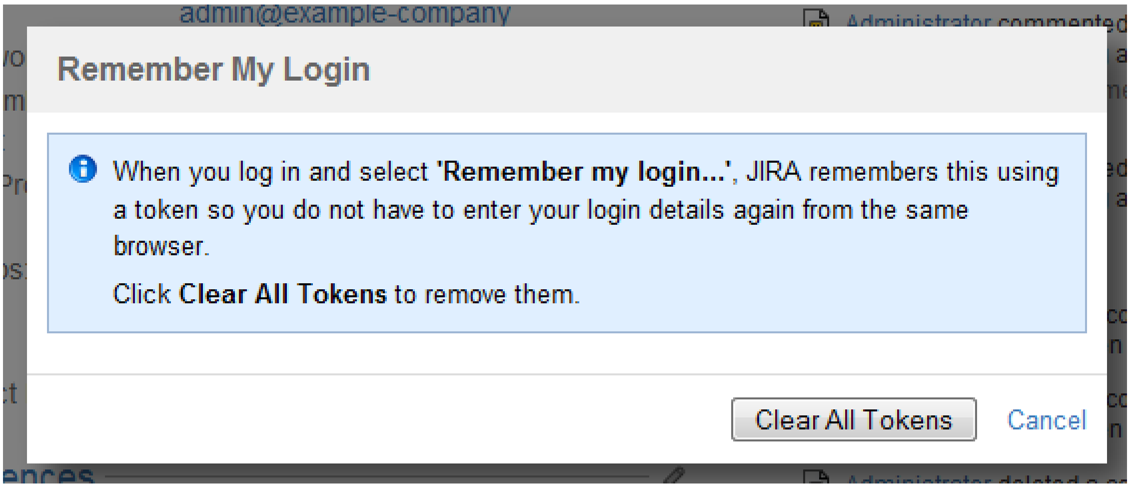
These features are especially useful in situations where users have been accessing your JIRA site in a public environment, selected the '**Remember by login...**' check box before logging in, but have forgotten to log out.

> If you are a JIRA administrator who wishes to disable this feature from your JIRA site, please refer to Disabling Remember My Login on this Computer.

Clearing 'Remember my login' Tokens from a User Profile

A JIRA user can clear all of their own 'Remember my login' tokens from JIRA through their user profile. To do this:

1. Visit your User Profile.
2. In the **Details** section, click the '**Clear All Tokens**' link. The **Remember my login** message box appears.
   Screenshot: 'Remember my login' message box

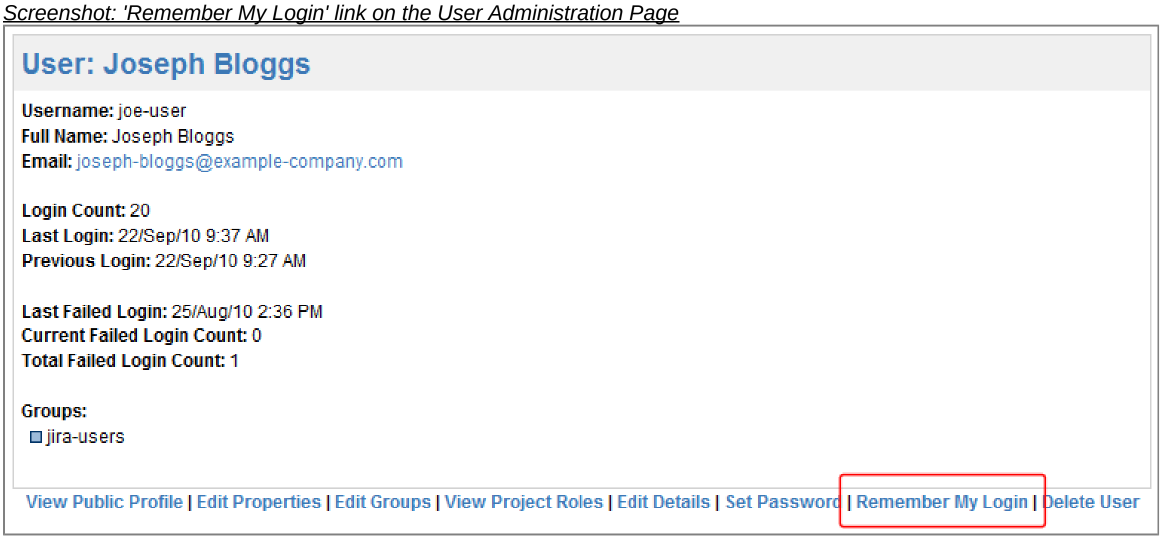


3. Click the '**Clear All Tokens**' button. All tokens associated with your user account will be removed from the JIRA server.

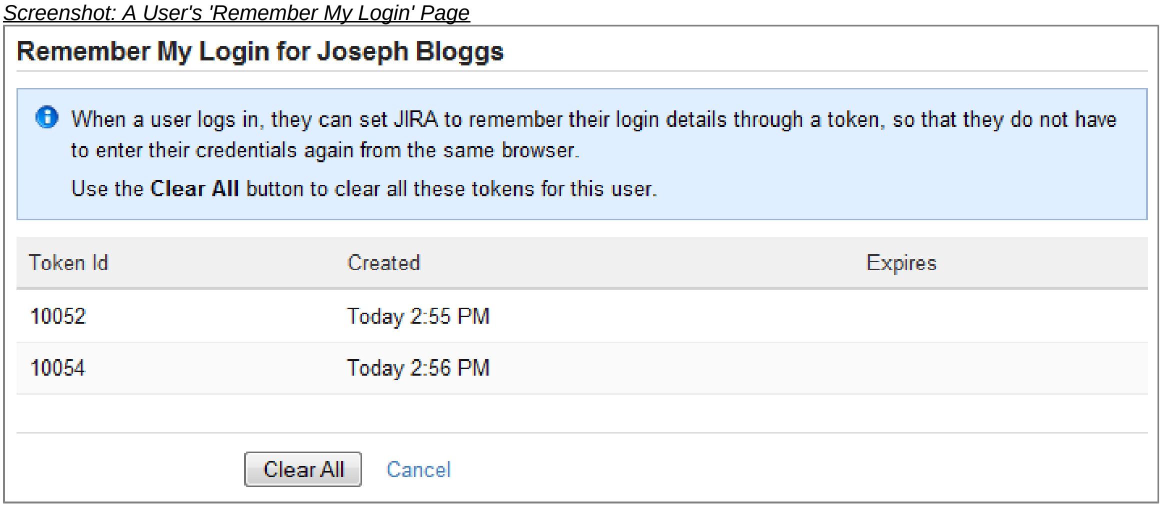
Clearing a User's 'Remember my login' Tokens from the Administration Console

JIRA administrators can clear all 'Remember my login' tokens associated with any user's account through the JIRA administration console. To do this:

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard.
3. Click '**User Browser**' from the **Users, Groups & Roles** section of the administration menu. This displays the **User Browser**.
4. Click the **Username** or **Email Address** of the user whose 'Remember my login' tokens you wish to remove. Details about that user and their login information is displayed.
   To restrict the list of users shown in the **User Browser**, use the Filter form at the top of the User Browser. Specifying (part of) the user's email and/or group, then clicking the '**Filter**' button, will reduce the list to only those users who match those criteria.
5. Click the '**Remember My Login**' link to display that user's **Remember My Login** page.
   Screenshot: 'Remember My Login' link on the User Administration Page



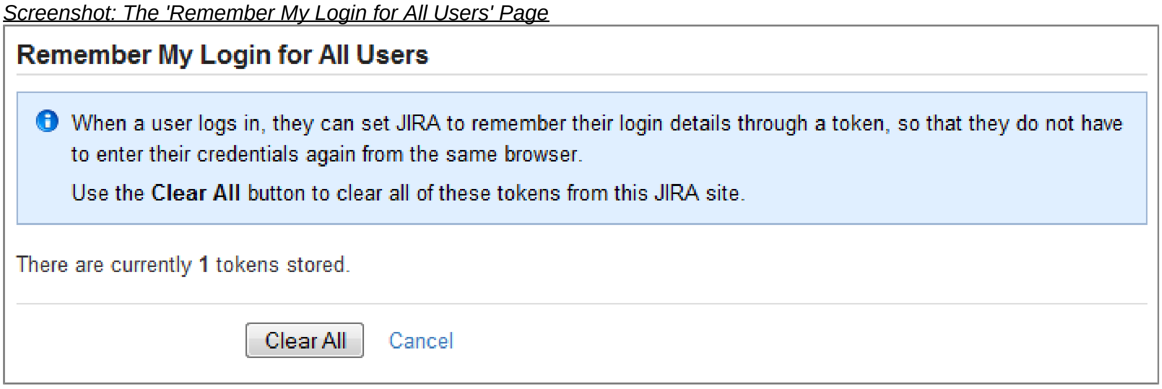
Screenshot: A User's 'Remember My Login' Page



6. Click the '**Clear All**' button to remove all 'Remember my login' tokens associated with this user account from the JIRA server.

Clearing *all* 'Remember my login' Tokens from the JIRA site

JIRA administrators can also clear all 'Remember my login' tokens from their JIRA site through JIRA's administration console. To do this:

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard.
3. Click '**Remember My Login**' from the **System** section of the administration menu. This displays the **Remember My Login for All Users** page.
Screenshot: The 'Remember My Login for All Users' Page


4. Click the '**Clear All**' button to remove all 'Remember my login' tokens from the JIRA server.

Disabling Remember My Login on this Computer

To remove the 'Remember my login on this computer' option on the login page, follow the instructions below:

Option 1
The checkbox can be disabled by setting the 'jira.option.allowcookies' property to 'false' in `WEB-INF/classes/jira-application.properties` file. After that, a restart of JIRA is required in order for the changes to take effect.

Option 2
Edit the `./atlassian-jira/includes/loginform.jsp` file.

Project Management

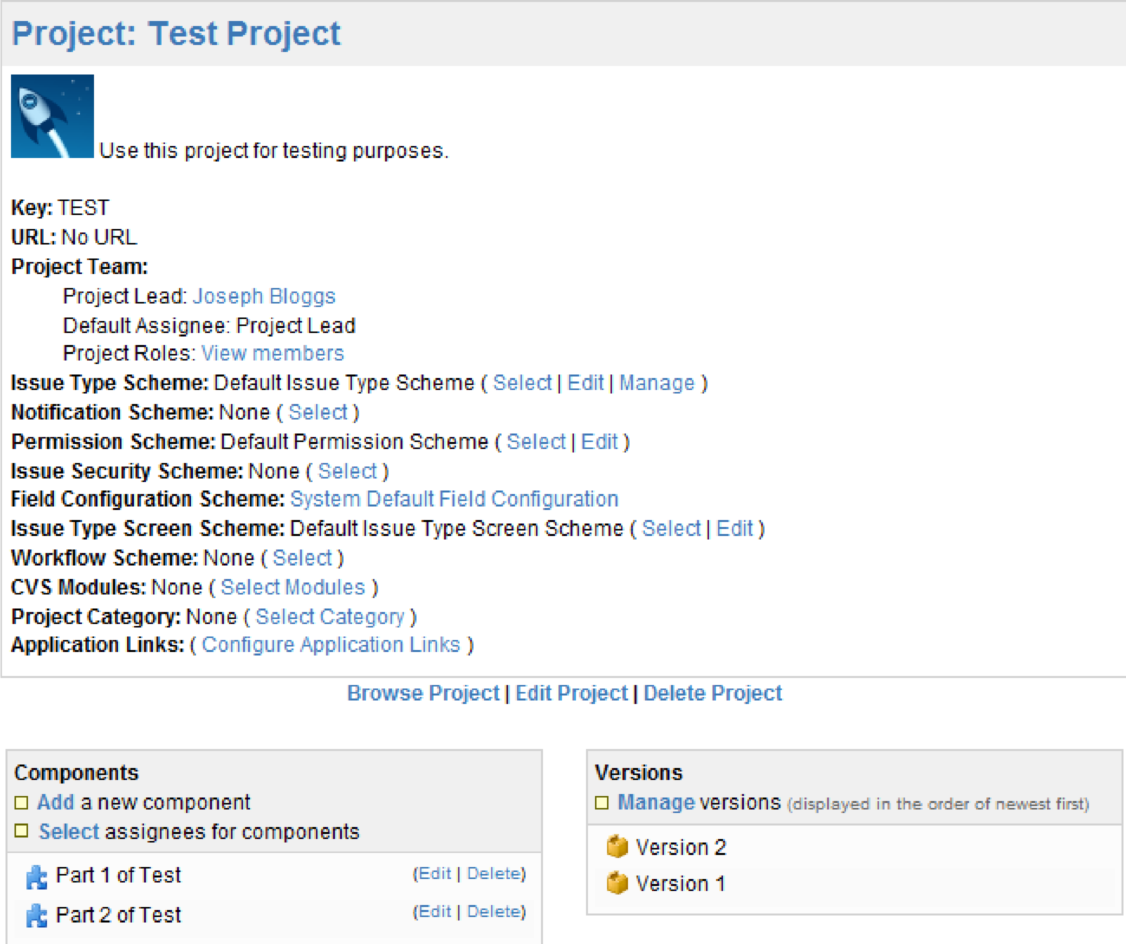
- Defining a Project
- Managing Project Role Membership
- Defining a Component
- Managing Versions
    - Creating Release Notes
- Configuring Project Keys

Defining a Project

To configure a project in JIRA:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select an existing project, or click **'Add Project'** to add a project.

Here is what a project looks like once created:



A project's configuration settings are as follows:

- **Avatar** — an image (48x48 pixels) that represents the project. You can either use the default image, i.e.:
  
  or choose a different image. If you prefer not to use an image, simply upload a transparent pixel.
- **Description** — an optional description of this particular project. You can include HTML, but make sure all your tags are closed.

> Please be aware that this is completely unfiltered HTML, therefore it is susceptible to cross site scripting attacks.

- **Key** — a 'key' unique to this project (eg. 'WEB'), which specifies the first few letters of this project's issue keys (e.g. 'WEB-100'). We recommend that you define a key that describes the project and is easy to type (as it prefixes each issue in the project). Please note that the key is shown to users who do not have permission to see the project and cannot be changed once the project exists.
- **URL** — an optional URL associated with this project, eg. pointing to project documentation.
- **Project Team:**
  - **Project Lead** — user fulfilling the role of project leader. Used as the 'Default Assignee' (see below), and potentially elsewhere in JIRA (e.g. in permission schemes, notification schemes, issue security schemes and workflows).
  - **Default Assignee** — the user to whom issues in this project are initially assigned when created. Can be either the 'Project Lead' (above), or, if **Allow unassigned issues** is set to 'On' in JIRA's general configuration, 'Unassigned'. There are also default component assignees.
  - **Project Roles** — members are users/groups who fulfil particular functions for this project. Project roles are used in permission schemes, notification schemes, issue security schemes and workflows.
- **Issue Type Scheme** — the project's issue type scheme determines which issue types apply to this project.
- **Notification Scheme** — the project's notification scheme determines who receives email notifications of changes to issues in this project.
- **Permission Scheme** — the project's permission scheme determines who has permission to view or change issues in this project.
- **Issue Security Scheme** — the project's issue security scheme determines what visibility levels issues in this project can have (see issue-level security).
- **Field Configuration Scheme** — the project's field configuration scheme determines which field configuration applies to issue types in this project. (A field configuration determines each field's overall visibility, requiredness, formatting (wiki/rich-text or plain) and help-text).
- **Screen Scheme** — the project's screen scheme determines which screens are displayed for different issue operations (view, edit, create);

or:
Issue Type Screen Scheme — the project's issue type screen scheme determines which screens are displayed for different issue operations (view, edit, create), for different issue types.
- **Workflow Scheme** — the project's workflow scheme determines which workflows (issue state transitions) apply to issue types in this project.
- **CVS Modules** — configures CVS integration for this project.
- **Mail Configuration** — specifies the 'From' address for emails sent from this project. Only available if an SMTP email server has been configured in JIRA.
- **Project Category** — a logical category to group this project into. Useful for managing multiple related projects. New categories can be created via the 'Project Categories' link in the 'Administration' menu.
- **Application Links** — entities to which this JIRA project has been linked in other applications (via application links). New entity links can be created by clicking the '**Configure Application Links**' link. See Linking your JIRA Project to another Entity for details.

As well as:

- **Components** — logical groups that this project's issues can belong to. See the component management page for details.
- **Versions** — versions defined in the project. See the version management page for details.

A note about Project Administrators

A JIRA project administrator is someone who has the project-specific 'Administer Project' permission, but not necessarily the global 'JIRA Administrator' permission.

A project administrator can:

- Edit the project name ('Test Project' in the screenshot above)
- Edit the project description ('A project for demonstration purposes' in the screenshot above)
- Edit the project avatar image
- Edit the URL
- Edit the Project Lead
- Edit project role membership *
- Configure entities for application links
- Define project components
- Define project versions

Additional Resources

- Adding a Project tutorial video — Watch this short tutorial video to see how a project is added in JIRA. Please note the JIRA version of the tutorial video before watching.

Managing Project Role Membership

A JIRA project role is a flexible way to associate users and/or groups with a particular project.

Unlike groups, which have the same membership throughout JIRA, project roles have specific members for each project. Users may play different roles in different projects.

> This page contains instructions for managing membership of existing project roles. For information on creating and using project roles, please see Managing project roles.

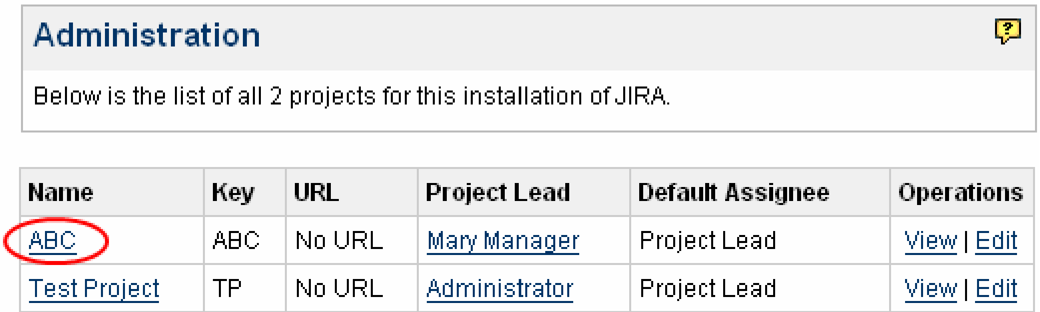
On this page:

- Viewing project role members
- Assigning a user to a project role
- Removing a user from a project role
- Assigning a group to a project role
- Removing a group from a project role

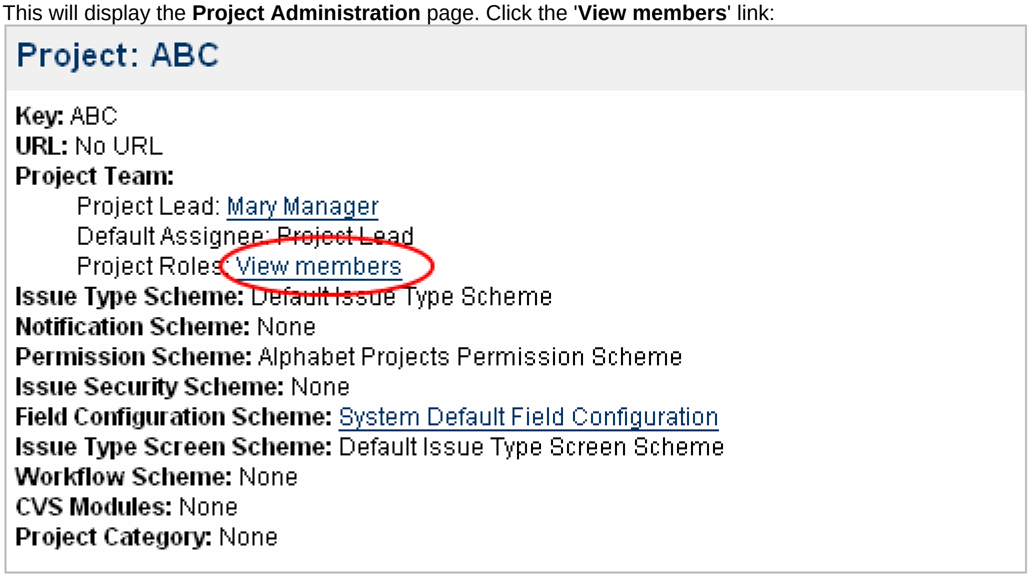
Viewing project role members

To see which users and groups belong to each project role for a particular project:

1. Log into JIRA as a project administrator. (A project administrator is someone who has the project-specific permission **'Administer Project',** but not necessarily the global permission **'JIRA Administrators'.**)
2. Click the **'Administration'** link on the top bar.
3. This will display the **Administration** page, showing a list of projects which you have permission to manage. Click the project of interest.



4. This will display the **Project Administration** page. Click the '**View members**' link:

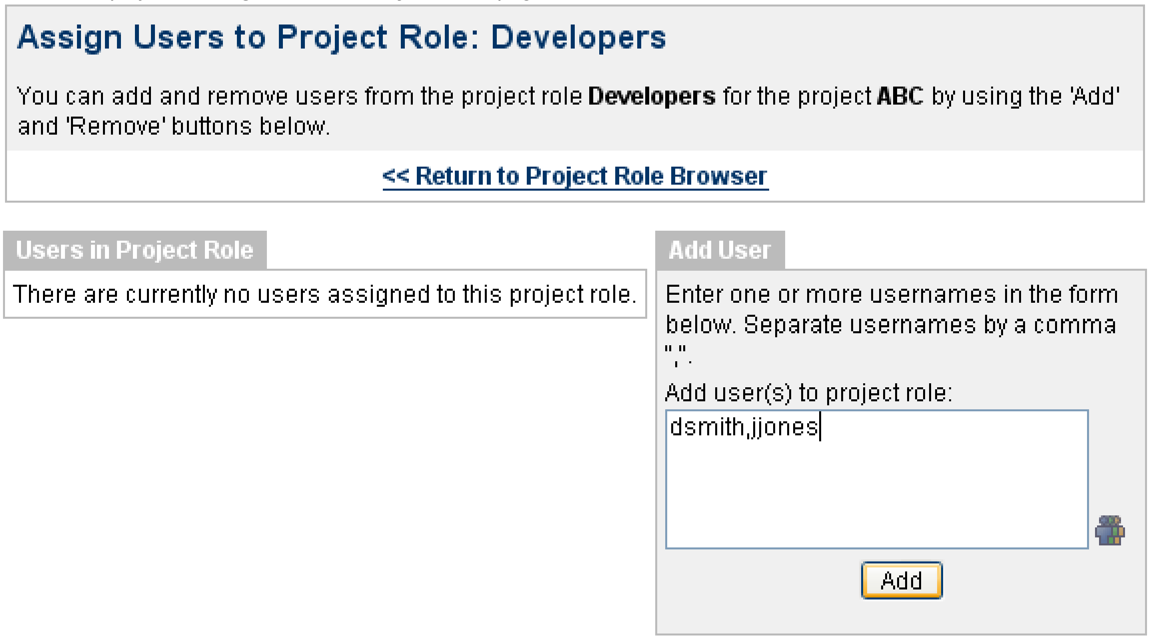


5. This will display the **Manage Project Role Membership** page, showing the project role members for this project: !project_roles-manage_roles_project.png|title="View project roles"!From this page you can assign users/groups to and remove them from project roles, as described below.

> *A project administrator is someone who has the project-specific 'Administer Project' permission, but not necessarily the global 'JIRA Administrator' permission.

Assigning a user to a project role

1. Open the '**Manage Project Role Membership**' page as described in 'Viewing project role members' (above).
2. Click the '**Edit**' link in the '**Users**' column for the project role you wish to edit.
3. This will display the '**Assign Users to Project Role**' page:



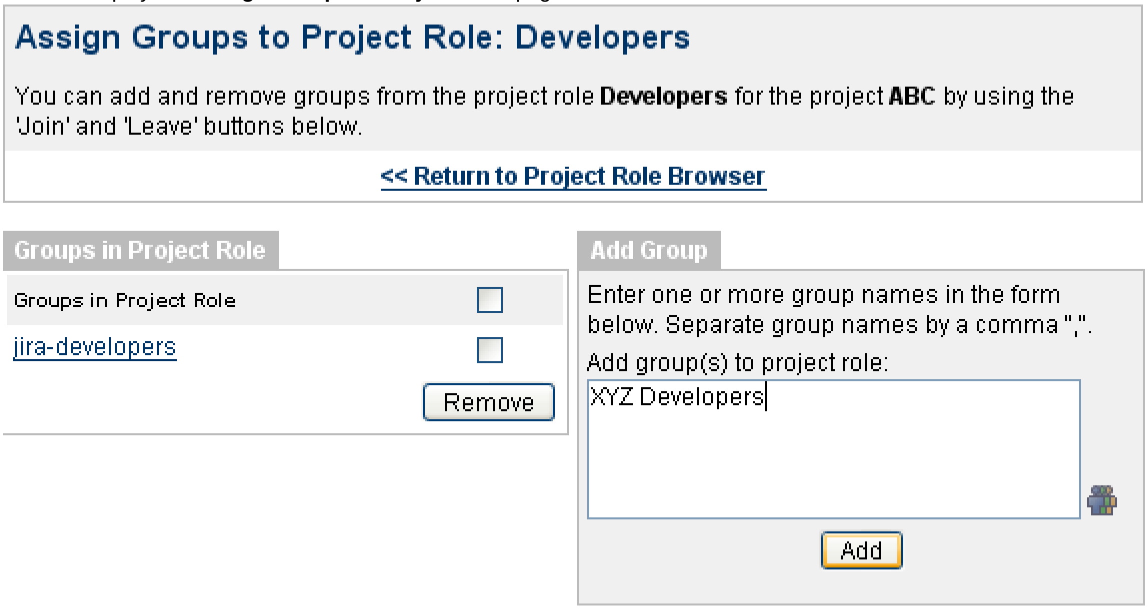
The users currently in the project role are listed on the left-hand side of the page. Type the username(s) in the '**Add User**' box on the right-hand side of the page, then click the '**Add**' button.

Removing a user from a project role

1. Open the '**Manage Project Role Membership**' page as described in 'Viewing project role members' (above).
2. Click the '**Edit**' link in the '**Users**' column for the project role you wish to edit.
3. This will display the '**Assign Users to Project Role**' page. The users currently in the project role are listed on the left-hand side of the page. Tick the user(s) you wish to remove from the project role, then click the '**Remove**' button.

Assigning a group to a project role

1. Open the '**Manage Project Role Membership**' page as described in 'Viewing project role members' (above).
2. Click the '**Edit**' link in the '**Groups**' column for the project role you wish to edit.
3. This will display the '**Assign Groups to Project Role**' page:



The groups currently in the project role are listed on the left-hand side of the page. Type the group name(s) in the '**Add Group**' box on the right-hand side of the page, then click the '**Add**' button.

Group membership can only be viewed/edited by people with the global 'JIRA Administrator' permission. Project administrators may therefore prefer to assign users, rather than groups, to their project roles.

Removing a group from a project role

1. Open the '**Manage Project Role Membership**' page as described in 'Viewing project role members' (above).
2. Click the '**Edit**' link in the '**Groups**' column for the project role you wish to edit.
3. This will display the '**Assign Groups to Project Role**' page. The groups currently in the project role are listed on the left-hand side of the page. Tick the group(s) you wish to remove from the project role, then click the '**Remove**' button.

A project role need not have any user or group assigned to it, although project administrators should be careful with this. Depending on how a project role is utilised (e.g. if the project's permission scheme is using project roles), it is possible that not having anyone in a particular project role could make some project activities unavailable.

Defining a Component

Components are sub-sections of a project. They are used to group issues within a project into smaller parts. The available operations for components are:

- Add — Make new components under which issues can be classed.
- Delete — Remove a component from a project.
- Edit — Update/change the details of a particular component.
- Select Default Assignee — Set the default assignee for issues created in a particular component.

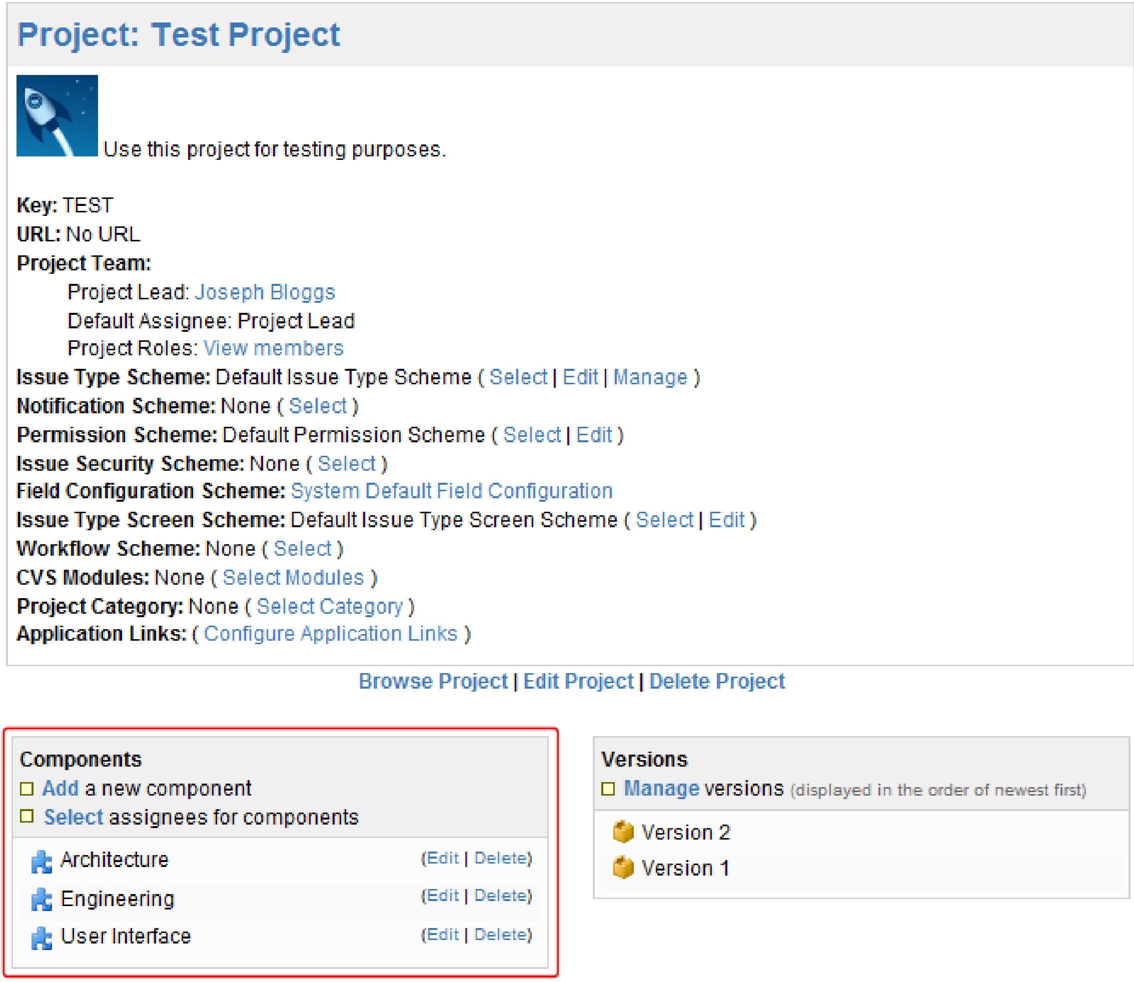
On this page:

- Managing project components
- Adding a new component
- Selecting a Default Assignee
    - Default Assignee Options
- Editing a component
- Deleting a component

Managing project components

All component management operations are available from the Component section of the Project Admin Page.

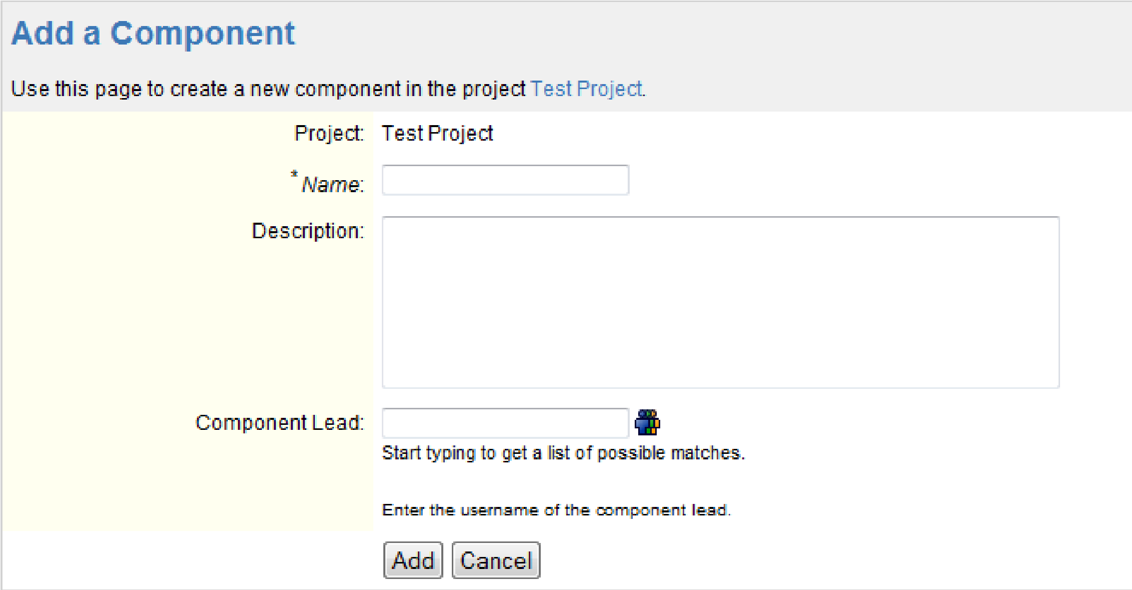
1. Login to JIRA as a project administrator. (A project administrator is someone who has the project-specific permission **'Administer Project',** but not necessarily the global permission **'JIRA Administrators'.**)
2. Click the **'Administration'** link on the top bar.
3. This will display the **Administration** page, showing a list of projects which you have permission to manage. Click the project of interest.
4. You will now see a page displaying the project details. On the lower left, the **'Components'** section displays a summary of the project's components along with links to add, edit and remove components (as described below).



If you have created a new project and have not assigned a permission scheme with it on creation, then you will not see the above display. Instead, the **'Components'** section will say "There are no components at the moment".

Adding a new component

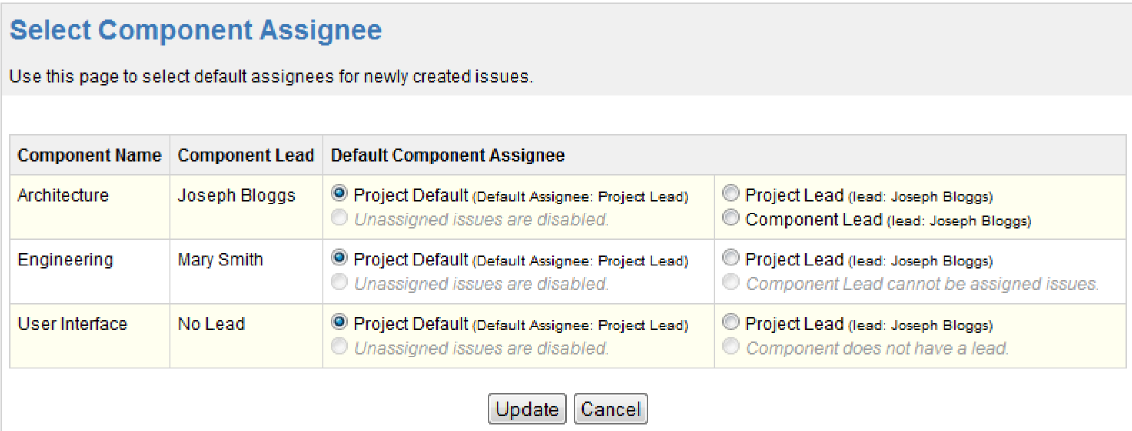
1. In the **'Components'** section (see above), click the 'Add' link.
2. The 'Add a Component' screen will be displayed. Type the name of your new component.
3. You can also optionally enter the component description and/or assign a user to be the component lead.
4. Click the "Add" button. The component summary list is updated immediately and you will be redirected to the project admin page.



Selecting a Default Assignee

You can also extend the default assignee of an issue to be component specific instead of project specific.

1. In the **'Components'** section (see 'Managing project components' above), click the 'Select' link. A 'Select Component Assignee' pane will appear on the Project Admin Page.
2. For each component, select the assignee to whom you want to have new issues in the component assigned by default. See the list of options below.
3. Click on the '**Update**' button.



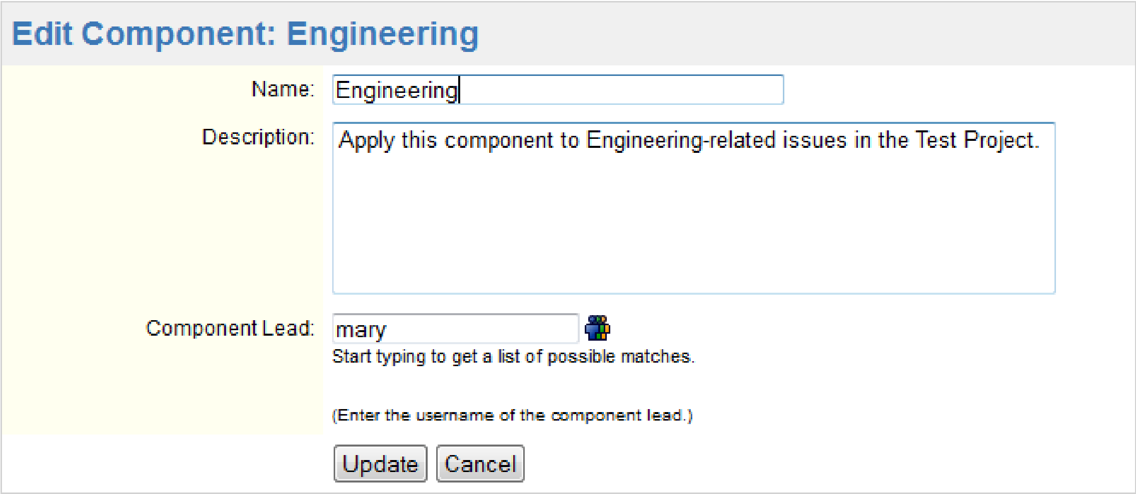
In the event that the default assignees of components clash, the assignee will be set to the default assignee of the component that is first alphabetically.

Default Assignee Options

Option	Description
Project Default	Issues matching this component will have the assignee set to the same default assignee as the parent project.
Project Lead	The assignee will be set to the project leader. **Condition:** If the project leader is not permitted to be assigned to issues in the permission scheme this option will be disabled and will say "Project Lead is not allowed to be assigned issues.".
Component Lead	The assignee will be set to the component leader. **Condition:** If the component leader is not permitted to be assigned to issues in the permission scheme this option will be disabled and will say "Component Lead is not allowed to be assigned issues".The Component Lead option will also not be available if the component does not have a lead assigned to the component. Instead under this option it will say "Component does not have a lead.".
Unassigned	The assignee of the issue will not be set on the creation of this issue. **Condition:** The unassigned option will only be available if the unassigned is enabled in the General Configuration. Instead under this option it will say "Unassigned issues are disabled.".

Editing a component

1. In the **'Components'** section (see 'Managing project components' above), click the 'Edit' link at the right of a the component you wish to edit.
2. This will bring you to the "Edit Component" page. Here, it is possible to edit the version name, description and lead.
3. Press the 'Update' button.
4. On completion of the update operation, you are returned to the project admin page - with an updated component list reflecting the changes made.



Deleting a component

1. In the **'Components'** section (see 'Managing project components' above), click the '**Delete**' link at the right of the component you wish to delete.
2. This will bring you to the "Delete Component" page.
3. On this page you can specify the action to be taken regarding the issues in this component. You can either associate these issues with another active component, or have the references removed.
4. Press the '**Delete**' button.
5. On completion of the delete operation, you are returned to the project admin page - with an updated component list reflecting the changes made.

Managing Versions

Versions are points-in-time for a project. They help you schedule and organise your releases. Once a version is created, the following reports are useful:

- Road Map report — gives you a view of upcoming versions
- Change Log report — gives you a review of released versions

The Change Log and Road Map reports are driven by the 'Fix For Version' field on each issue.

Versions can be:

- Added — create a new version against which issues can be aligned.
- Released — mark a version as released. This changes the Road Map report, Change Log report and some issue fields' drop-downs.
- Rescheduled — re-arrange the order of versions.
- Archived — hide an old version from the Road Map and Change Log reports, and in the JIRA User Interface.
- Merged — combine multiple versions into one.

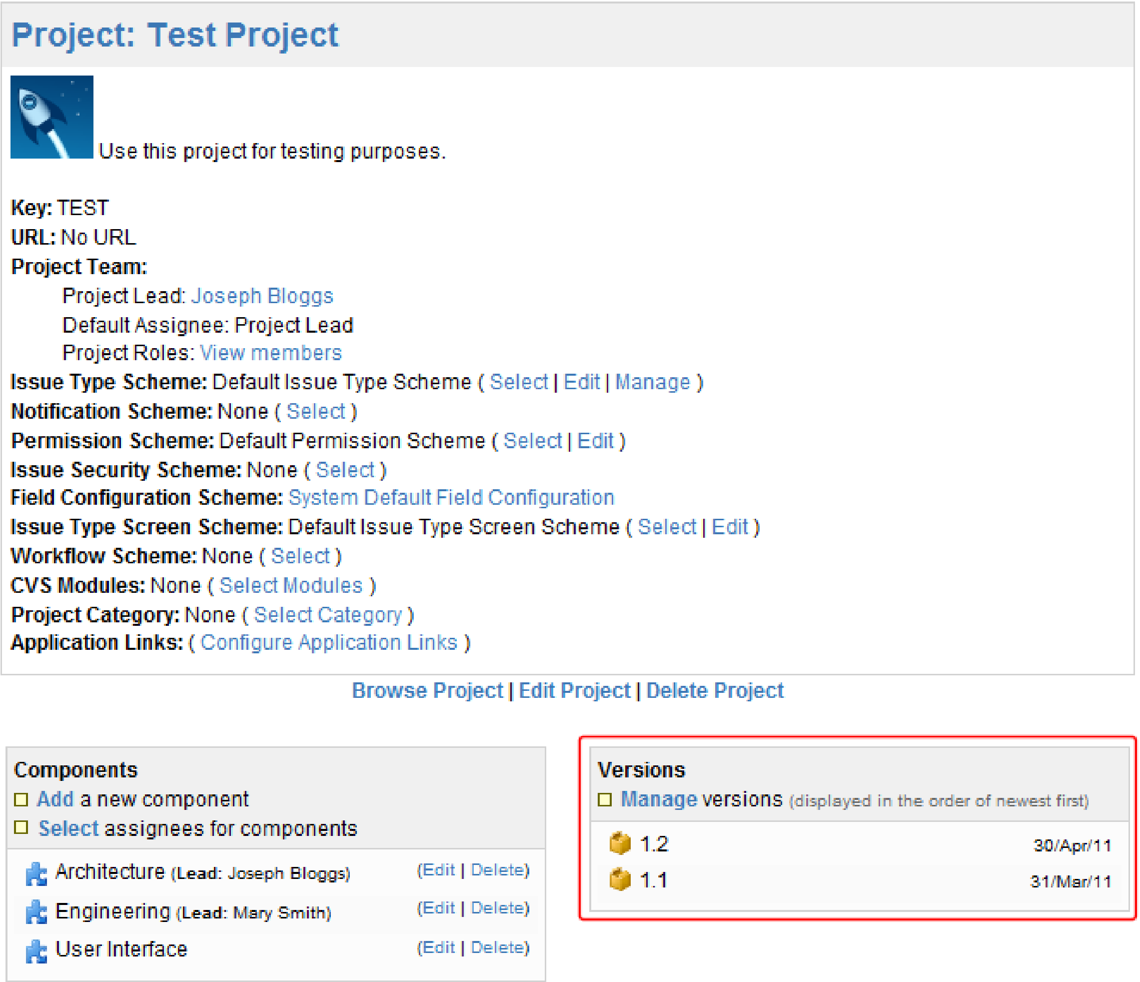
On this page:

- Managing a project's versions

  - Version status
- Adding a new version
- Releasing a version
- Archiving a version
- Merging multiple versions
- Editing a version's details
- Deleting a version
- Rescheduling a version
- See also

Managing a project's versions

1. Login to JIRA as a project administrator. (A project administrator is someone who has the project-specific permission **'Administer Project',** but not necessarily the global permission **'JIRA Administrators'**.)
2. Click the **'Administration'** link on the top bar.
3. This will display the **Administration** page, showing a list of projects which you have permission to manage. Click the project of interest.
4. You will now see a page displaying the project details. On this page all the configurable actions available on the project are easily accessible. On the lower right, a summary of the versions is displayed along with the link to the version management interface. The summary indicates the version status and the scheduled release date for that version.



> **Note**
> If you have created a new project and have not assigned a permission scheme with it on creation, then you will not see the above display. Instead under versions it will say "There are no versions at the moment".

5. Click the 'Manage' link to display the 'Manage Versions' screen, which shows a list of versions and each version's status. From here you can perform the operations described below.

Version status

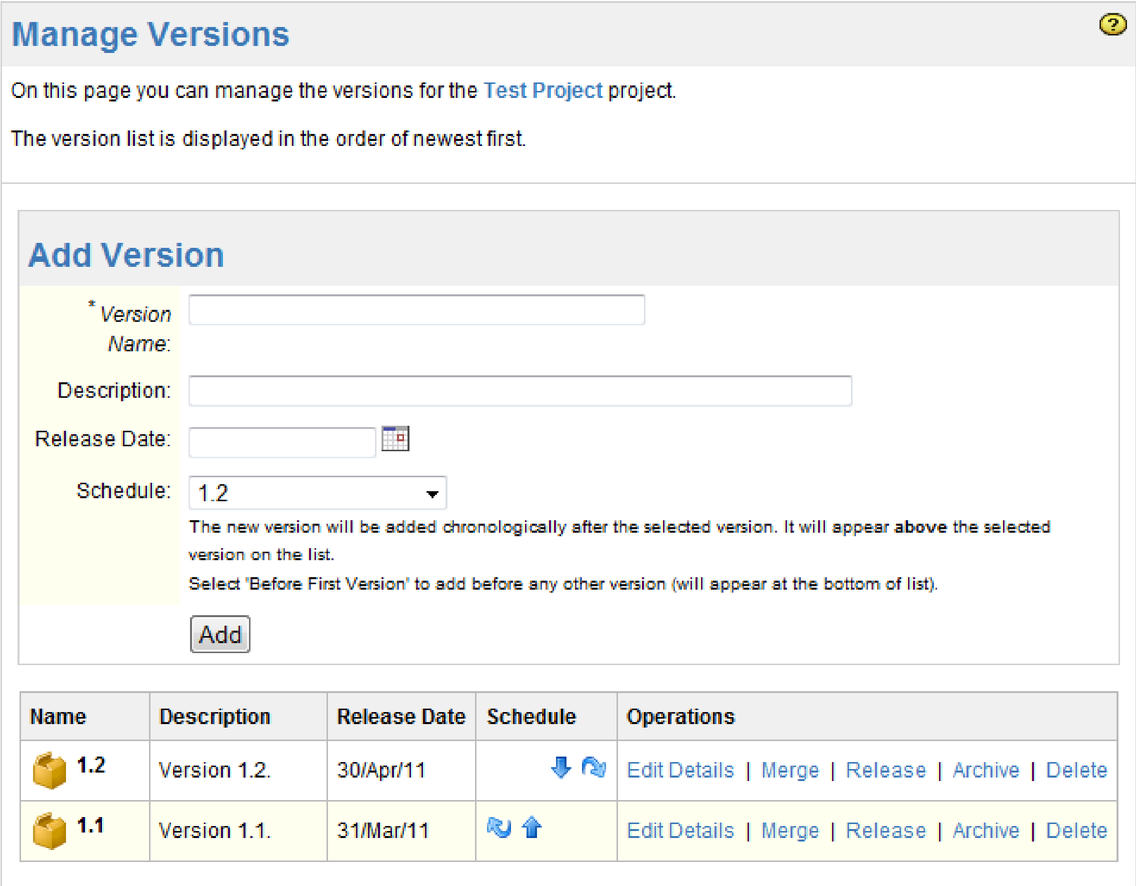
Each version can have any of the following four statuses:

- **Released** — a bundled package
- **Unreleased** — an open package
- **Archived** — a semi-transparent package
- **Overdue** — the release date is highlighted

The status affects where the version appears in drop-down lists for version-related issue fields ('Fix For Version' and 'Affects Version').

Adding a new version

1. The "Add New Version" form is located at the bottom of the **'Manage Versions'** screen.
2. From here, you enter the name for the version. The name is treated as a plain string by JIRA, so it can be simple numeric, e.g. "2.1", it can be complicated numeric, e.g. "2.1.3", or it can be something zany like the project's internal code-name, e.g. "Memphis".
3. Optional details such as the version description and release date can be also specified.
4. It is also possible to 'schedule' the new version by selecting its position in the version list. The new version is added after the selected version - or it can be placed at the start of the list by selecting 'First'.
5. Click on the "Add" button. The version management list is updated immediately, with the newly created version added in the specified position.



Note
At present, the version release date is only used to indicate the scheduled release date for a version. Currently JIRA only uses the release date for reporting purposes, but in future releases it is intended to add further functionality to take advantage of this data.

Releasing a version

1. On the **'Manage Versions'** screen, click the '**Release**' link available in the **'Operations'** column for the version you are interested in.
2. If there are any issues set with this version as their 'Fix For' version, JIRA allows you to choose to change the 'Fix For' version if you wish. Otherwise, the operation will complete without modifying these issues.
3. This operation immediately updates the specific version as 'released' throughout JIRA.
4. The version list indicates the version 'released' status with the bundled package icon. The **'Unrelease'** operation replaces the **'Release'** operation in the **'Operations'** column.
5. To un-release a version, simply click on the **'Unrelease'** link in the **'Operations'** column.

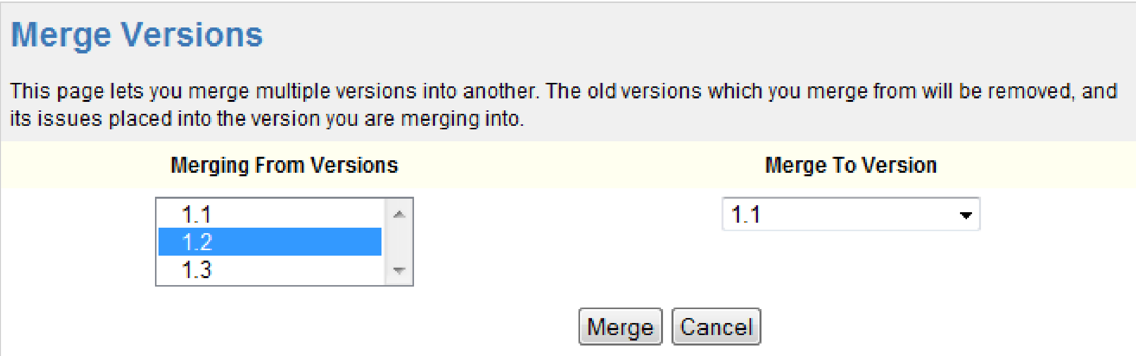
Archiving a version

1. On the **'Manage Versions'** screen, click the **'Archive'** link available in the **'Operations'** column for a version you are interested in.

2. This operation immediately updates the specific version as 'archived' throughout JIRA.
3. The version list indicates the version 'archived' status with a semi-transparent icon. The list of available operations is replaced with the 'Unarchive' operation. No further changes can be made to this version unless it is un-archived. Also it is not possible to remove any existing archived versions from an issue's affected and fix version fields or add any new archived versions.
4. To un-archive a version, simply click on the 'Unarchive' link in the operations column.

Merging multiple versions

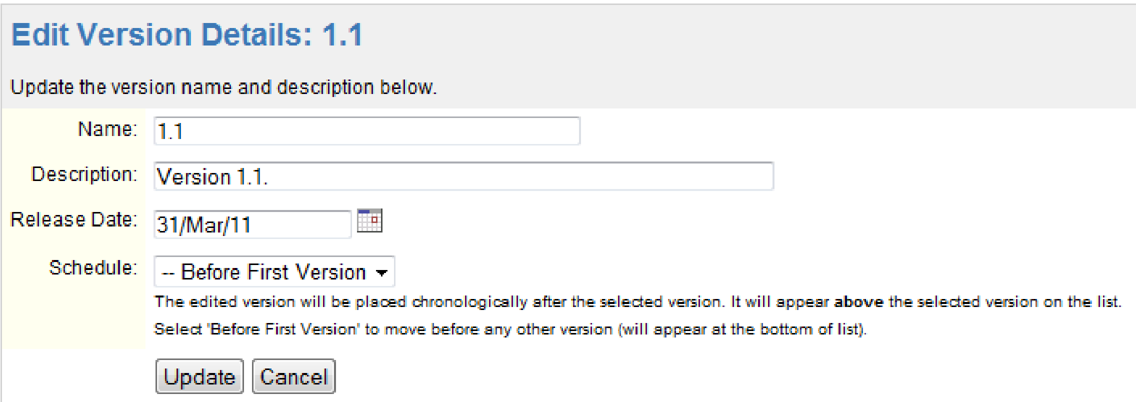
1. On the **'Manage Versions'** screen, click the 'Merge' link available in the **'Operations'** column for a version you are interested in.
2. This will take you to the 'Merge Versions' page.On this page are two select lists - both listing all un-archived versions. The specified version is highlighted in the 'Merging From Versions' select list on the left. It is possible to select further versions you wish to merge from. Versions selected on this list will be removed from the system. All issues associated with these versions will be updated to reflect the new version selected in the 'Merge To Version' select list on the right. It is only possible to select one version to merge to.



3. Click on the 'Merge' button. You will be shown a confirmation Page. Click on 'Merge' to complete the operation.
4. On completion of the merge operation, you are returned to the version management interface. The version list has been updated to reflect the changes that occurred in the merge operation.

Editing a version's details

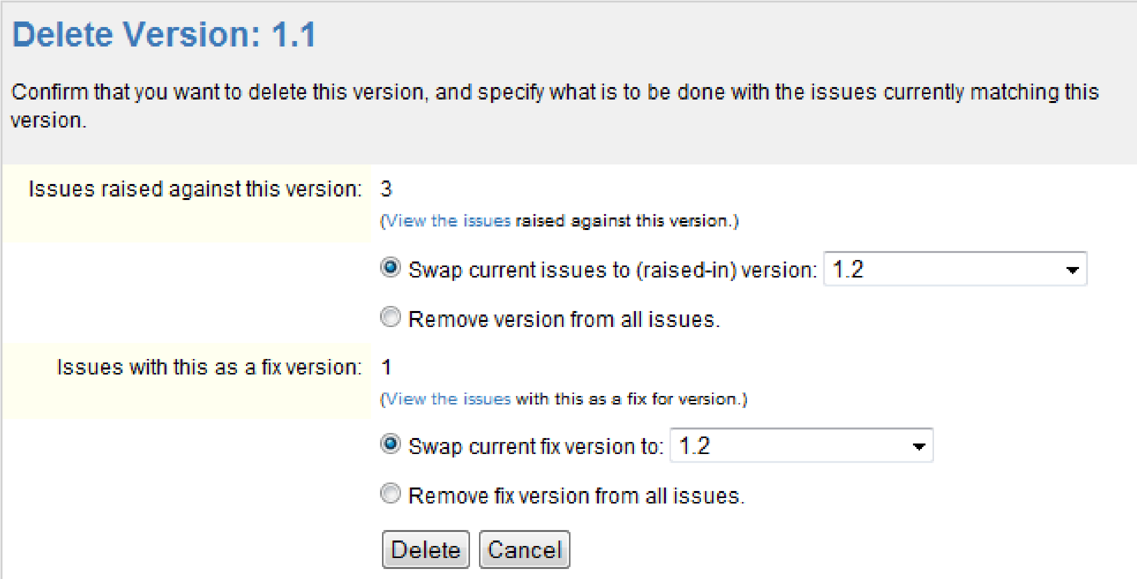
1. On the **'Manage Versions'** screen, click the **'Edit Details'** link available in the **'Operations'** column for the version you are interested in.
2. This will bring you to the **"Edit Version: <Version>"** page. Here, you can edit the version's Name, Description and Release Date:



3. Click the **'Update'** button to save your changes.
4. On completion of the update operation, you are returned to the **'Manage Versions'** screen — with an updated version list reflecting the changes made.

Deleting a version

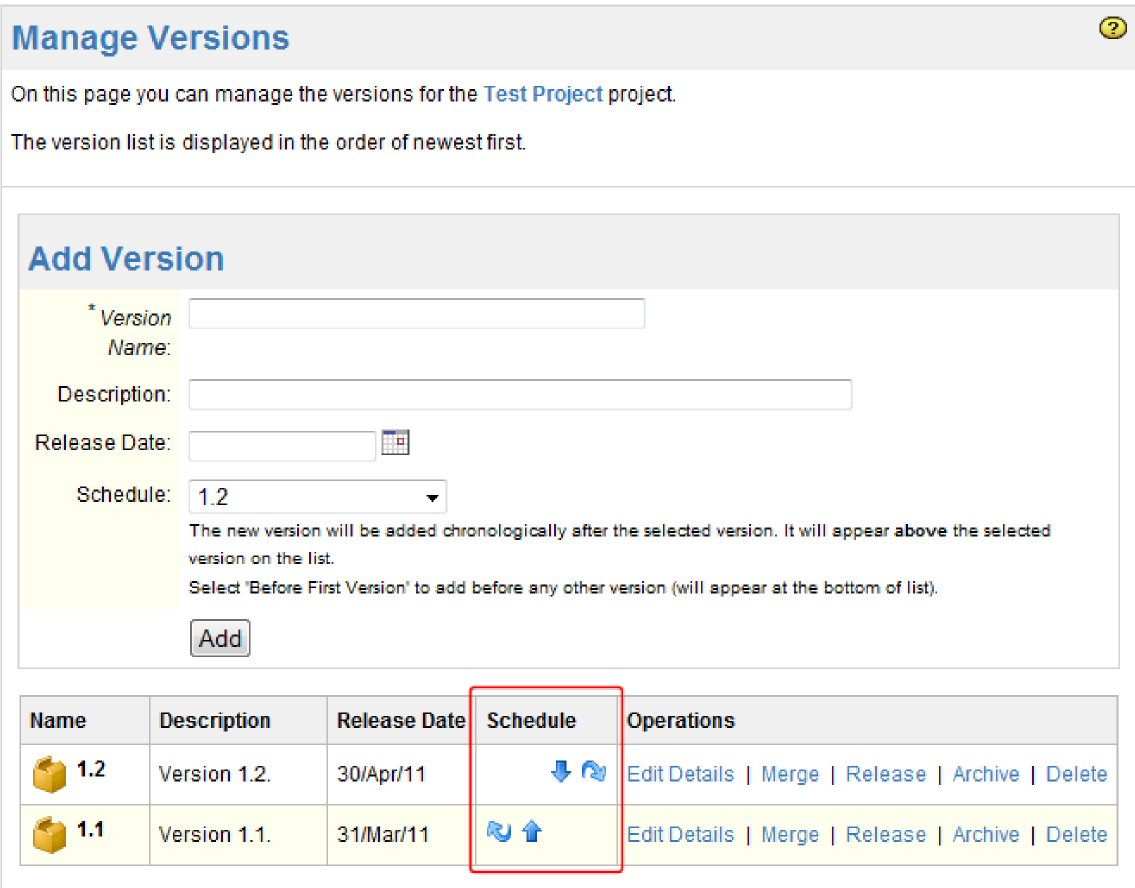
1. On the **'Manage Versions'** screen, click the **'Delete'** link in the **'Operations'** column for the version you wish to delete.
2. This will bring you to the **"Delete Version: <Version>"** confirmation page.
3. From here, you can specify the actions to be taken for issues associated with the version to be deleted. You can either associate these issues with another version, or simply remove references to the version to be deleted.



4. Click the **"Delete"** button.
5. On completion of the deletion, you are returned to the **'Manage Versions'** screen — with an updated version list reflecting the changes made.

Rescheduling a version

1. On the **'Manage Versions'** screen, re-scheduling operations are available through the 'Schedule' column.
2. It is possible to move a version up/down a position or to the start/end of the list by clicking on the specific arrow icon associated with the specific version row.
3. The version list is updated immediately with the selected version now occupying the specified position.



See also

- The GreenHopper documentation on Setting Up a Version Hierarchy

Creating Release Notes

JIRA provides the functionality to create release notes for a specific version of a project. The release notes contain all issues within the specified project that are marked with a specific "Fix For" version. The release notes can also be generated in a number of formats (e.g. HTML, plain text, etc.) so as they can be included in various documents.

At present, two example format templates are provided - HTML and Text - using Velocity templates. Further format templates can be created and added to the system.

Generating Release Notes

1. On the top navigation bar, click the white triangle next to '**Projects**'. The projects dropdown will display.
   Tip: *If you click on the '**Projects**' link instead of the triangle, the summary for your current project will display.*
2. Click the project that you wish to create release notes for. If it is not displayed in the dropdown, click '**View All Projects**' — you will be able to view a list of all projects set up in your JIRA instance and select your project from there.
3. Click '**Road Map**' tab on the left of the screen.
   Tip: *If you wish to see past release notes click on the '**Change Log**' tab instead.*
4. Click '**Release Notes**' link for the project version that you wish to generate release notes for. The 'Release Notes' page will display.
5. Click the '**Configure Release Notes**' link to configure the release notes. The 'Configure Release Notes' page will display:
   - Select the required project version for which the release notes will be generated in the '**Please select version**' dropdown.
   - Select the required format of the release notes — HTML and plain text format templates are provided in the '**Please select style**' dropdown.
6. Selecting the '**Create**' button will generate the release notes using the specified template in the specified format. The release notes will be displayed on screen and can be copied and pasted to another application.

Adding a New Format Template

1. Create a Velocity template similar in content to that of the examples provided — `releasenotes-text.vm` and `releasenotes-html.vm`. Consult the JIRA API documentation and the Jakarta Velocity User Guide.
2. The title within the template should be modified along with the code within the text area. The other sections of the template do not need to be modified.
3. Add the new format template to the list within the `jira-application.properties` file. A corresponding entry must be made in both the `jira.releasenotes.templatenames` and the `jira.releasenotes.templates` lists. It is also necessary that the entries in both lists are in the same order.
4. Restart JIRA.
5. The new format template is available for selection as a release note format template.

Also see the tutorial on How to Create a Custom Release Notes Template Containing Comments.

Configuring Project Keys

JIRA provides the ability to specify the format of project keys within the system. This is achieved by defining a regular expression 'rule' that governs the valid project key format.

Project Key Pattern

Through the property `jira.projectkey.pattern`, the administrator can specify a Perl5 regular expression defining the rule for a valid project key. During project creation, the user must specify a project key that conforms to this rule.This can be done by editing jira-application.properties. You will then need to restart JIRA (JIRA Standalone) or rebuild the JIRA webapp and redeploy in your app server.

Default Restrictions for Project Keys

By default, JIRA project key configuration is restricted to use two or more uppercase alphabetical characters.

Configuring Different Project Key Patterns

To configure a different rule for your Project Key syntax, change the regular expression in the `<jira-install/atlassian-jira/WEB-INF/classes/jira-application.properties` file. Below is a list of common examples and patterns:

Pattern Requested	Expression needed	Resulting Issue IDs	Comments
XXYY, where X indicates two fixed letters, Y represents two fixed digits	`([A-Z]{2}[0-9]{2})`	TQ09-01, TQ09-02, etc.	`[A-Z]` Any characters from A to Z {2} Matches the preceding character 2 times exactly `[0-9]` Any character from 0 to 9
XZ, where X indicates two or more letters, Z presents one or more digit or alphabet	`([A-Z][A-Z0-9]+)`	ACAT51-1, AAA5-1330, A20091-15	`[A-Z]` Any characters from A to Z `[A-Z0-9]` Any character from A to Z or 0 to 9 + specifies `[A-Z0-9]` as one or more characters from A to Z or 0 to 9

JIRA prepends the regular expression specified with '^' and closes it with '$' for an exact matching rule within the system. The project key must only be allowed to contain ASCII characters, as it is used in HTTP GET requests.

Do not use "." and "-"

- Avoid using the dash (`-`) character, as this character is inserted automatically after the regular expression and before the issue ID number.
- Avoid using the dash (`.`) character (i.e. dot/period/full-stop), as the CreateOrCommentHandler currently fails to add comments to existing issues if the project key contains a dot(.) — see JRA-23180.

Customising the Error Message for Invalid Keys

If JIRA detects that the project key entered does not match the `jira.projectkey.pattern`, it will throw the error message defined in `jira.projectkey.warning`.

You can change `jira.projectkey.warning` in the `jira-application.properties` so that when a user keys in the wrong format, they will be informed of the correct pattern to use.

Testing Your Regular Expression

A variety of tools allow searching using a Regular Expression. Most text editors will allow a Regular Expression search. There are also a variety of websites available to for testing a Regular Expression available from an Internet search.

Project Key Details

The `jira-application.properties` file also contains the following properties:

- `jira.projectkey.description` — a configurable description (to match the project key pattern) displayed on project creation
- `jira.projectkey.warning` — a configurable validation warning (to match the project key pattern)

It is not possible to configure the issue key pattern as JIRA expects this key to conform to specific rules.

Further information on Perl5 is available here.

Configuring Security

When configuring security for your JIRA instance, there are two areas to address:

- security within JIRA itself
- security in the external environment

Configuring security within JIRA

JIRA has a flexible security system which allows you to configure who can access JIRA, and what they can do/see within JIRA.

There are five types of security within JIRA:

1. Global permissions — these apply to JIRA as a whole (e.g. who can log in).
2. Project permissions — organised into permission schemes, these apply to projects as a whole (e.g. who can see the project's issues ('Browse' permission), create, edit and assign them).
3. Issue security levels — organised into security schemes, these allow the visibility of individual issues to be adjusted, within the bounds of the project's permissions.
4. Comment visibility — allows the visibility of individual comments (within an issue) to be restricted.
5. Work-log visibility — allows the visibility of individual work-log entries (within an issue) to be restricted. Does not restrict visibility of progress bar on issue time tracking.

Configuring security in the external environment

If your JIRA instance contains sensitive information, you may want to configure security in the environment in which your JIRA instance is running. Some of the main areas to consider are:

- Database:
  - If you are using an external database as recommended for production systems (i.e. you are not using the HSQL database that is bundled with JIRA Standalone), you should restrict access to the database that your JIRA instance uses.
  - If you are using the embedded HSQL database that is bundled with JIRA Standalone, you should restrict access to the directory in which you installed JIRA. (Note that the user which your JIRA instance is running as will require full access to this directory.)
- File system — you should restrict access to the following directories (but note that the user which your JIRA instance is running as will require full access to these directories):

    - Index directory
    - Attachments directory
- SSL — if you are running your JIRA instance over the Internet, you may want to consider using SSL.

Other security resources

Security Addendum 2010-04-16 - Preventing security attacks

Page: Severity Levels for Security Issues	
Page: User and Group Management	
Page: Configuring project specific security	
Page: How to Report a Security Issue	
Page: Security Advisory Publishing Policy	
Page: Security Patch Policy	
Page: Securing JIRA with Apache	
Page: Configuring Security	
Page: Tomcat security best practices	
Page: Security Advisories	

Configuring Issue Level Security

Issue security levels allow you to control who can see individual issues within a project (subject to the project's permissions).

An issue security level is a *named collection of users.* Issue security levels are created within issue security schemes, which are then associated with projects. Once an issue security scheme has been associated with a project, its security levels can be applied to issues in that project (note, sub-tasks will inherit the security level of their parent issue). Those issues will then only be accessible to members of that security level.

A security level's members may consist of:

- Individual users
- Groups
- Project roles
- Issue roles such as 'Reporter', 'Project Lead', and 'Current Assignee'
- 'Anyone' (eg. to allow anonymous access)
- A (multi-)user picker custom field.
- A (multi-)group picker custom field. This can either be an actual group picker custom field, or a (multi-)select-list whose values are group names.

> Only users with the project-specific 'Set Issue Security' permission can apply a security level to an issue, regardless of whether they are members of the security level.

On this page:

- Why use issue security?
- Creating an Issue Security Scheme
- Adding a Security Level to an Issue Security Scheme
- Setting the Default Security Level for an Issue Security Scheme
- Adding Users/Groups/Project Roles to a Security Level
- Assigning an Issue Security Scheme to a Project
- Deleting an Issue Security Scheme
- Copying an Issue Security Scheme
- Additional Resources

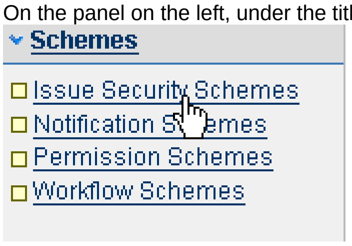
Why use issue security?

As an example, a company may have a public instance of JIRA running. Within this instance they may have several projects that external people (customers) can browse. However, it may not be appropriate to show all issues to the customers. To achieve this you could:

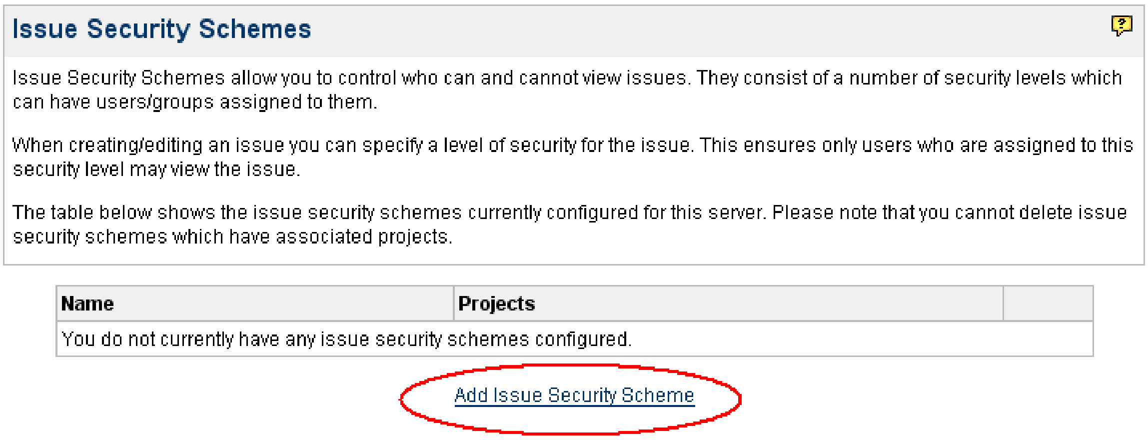
- Create an issue security scheme.
- Create an issue security level named 'Private' for this scheme.
- Add appropriate people to the 'Private' security level.
- Associate the issue security scheme with the relevant projects.
- Set the security level of specific issues to 'Private'.

Creating an Issue Security Scheme

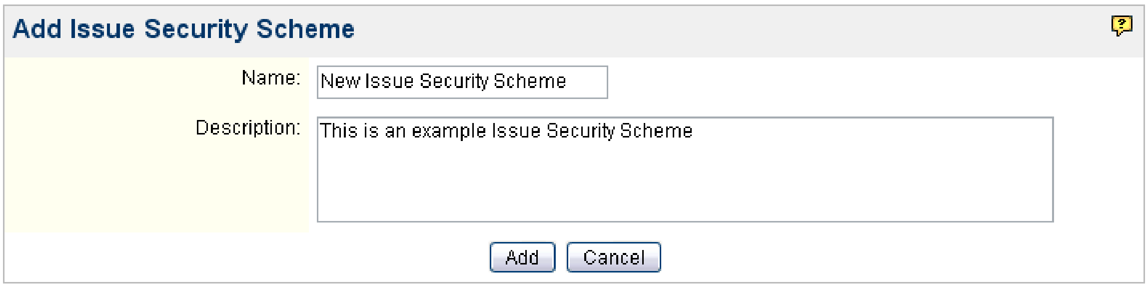
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Schemes', click the link labelled '**Issue Security Schemes**'.



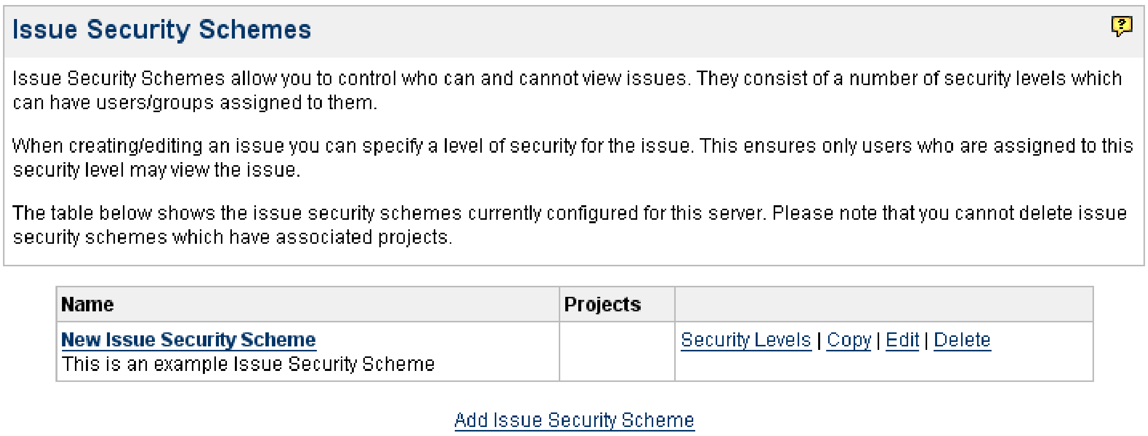
4. This will display the 'Issue Security Schemes' page. This page lists all of the Issue Security Schemes that JIRA currently has. Click the '**Add Issue Security Scheme**' link.



5. In the 'Add Issue Security Scheme' form, enter a name for the issue security scheme, and a short description of the scheme. Then click the '**Add**' button.



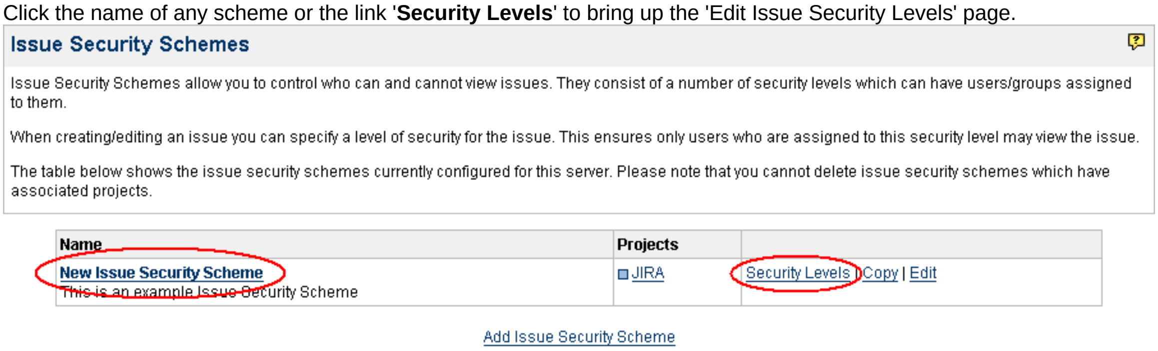
6. You will return to the 'Issue Security Schemes' page, which now contains the newly added scheme.



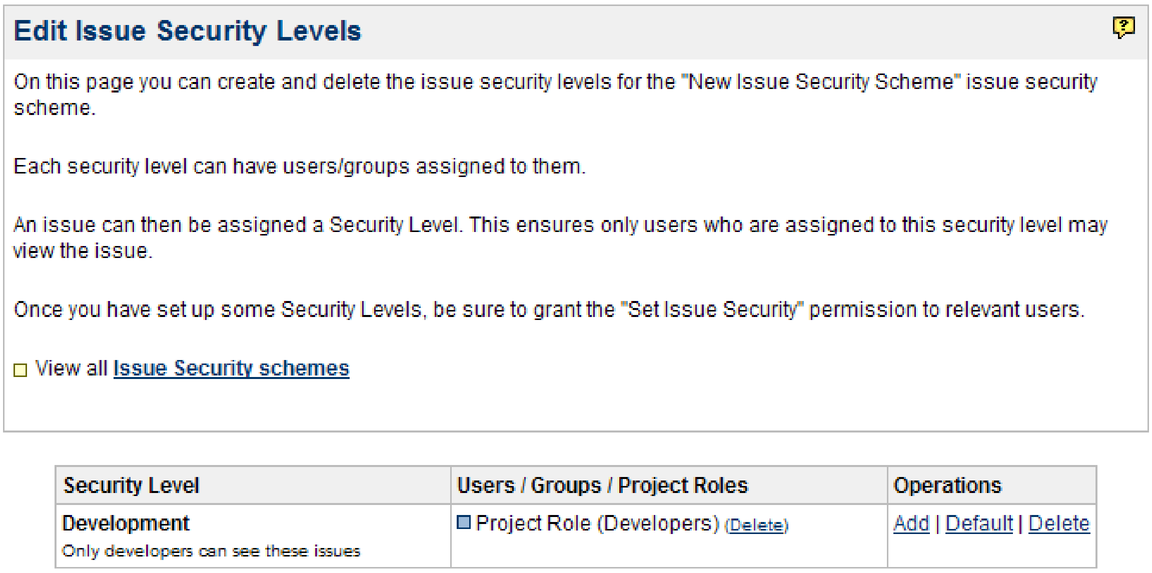
Adding a Security Level to an Issue Security Scheme

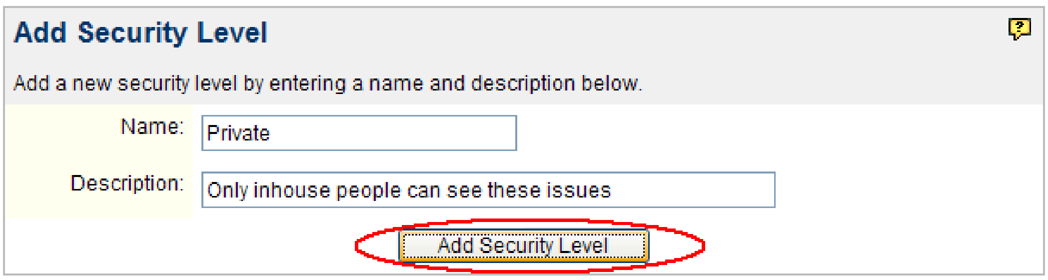
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Schemes', click the link labelled '**Issue Security Schemes**'.

4. This will display the 'Issue Security Schemes' page. This page lists all of the Issue Security Schemes that JIRA currently has.
5. Click the name of any scheme or the link '**Security Levels**' to bring up the 'Edit Issue Security Levels' page.



6. In the '**Add Security Level**' box, enter a name and description for your new security level. Then click the button '**Add Security Level**'.





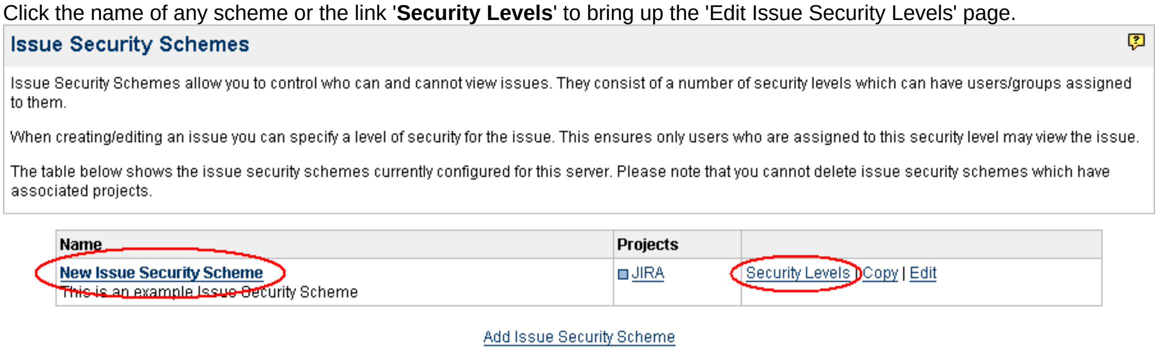
Setting the Default Security Level for an Issue Security Scheme

You can choose to specify a Default Security Level for your issue security scheme.

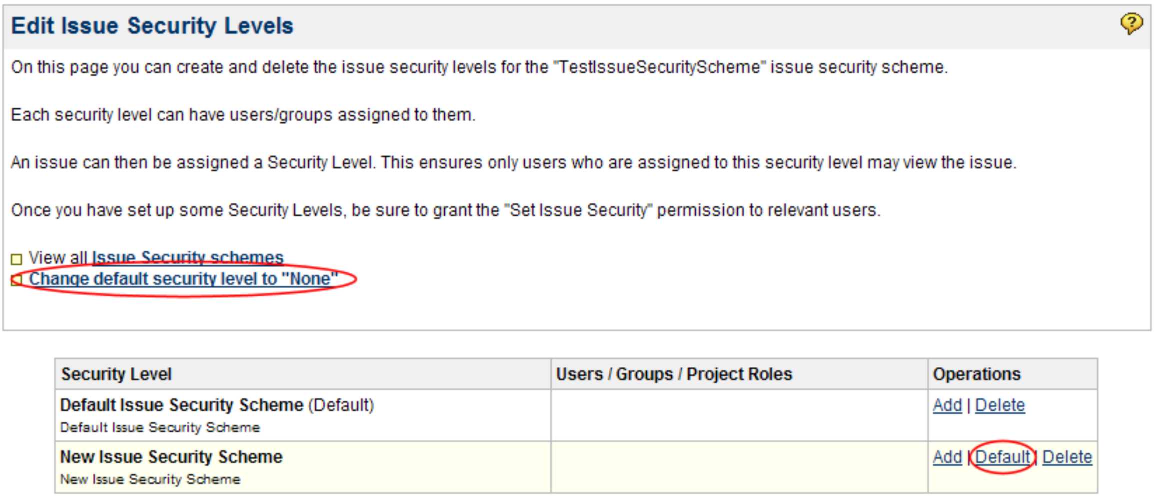
The Default Security Level is used when issues are created. If the reporter of an issue does not have the permission 'Set Issue Security', then the issue's security level will be set to the Default Security Level. If the project's issue security scheme does not have a Default Security Level, then the issue's security level will be set to 'None'. (A security level of 'None' means that anybody can see the issue.)

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Schemes', click the link labelled '**Issue Security Schemes**'.

4. This will display the 'Issue Security Schemes' page. This page lists all of the Issue Security Schemes that JIRA currently has.
5. Click the name of any scheme or the link '**Security Levels**' to bring up the 'Edit Issue Security Levels' page.

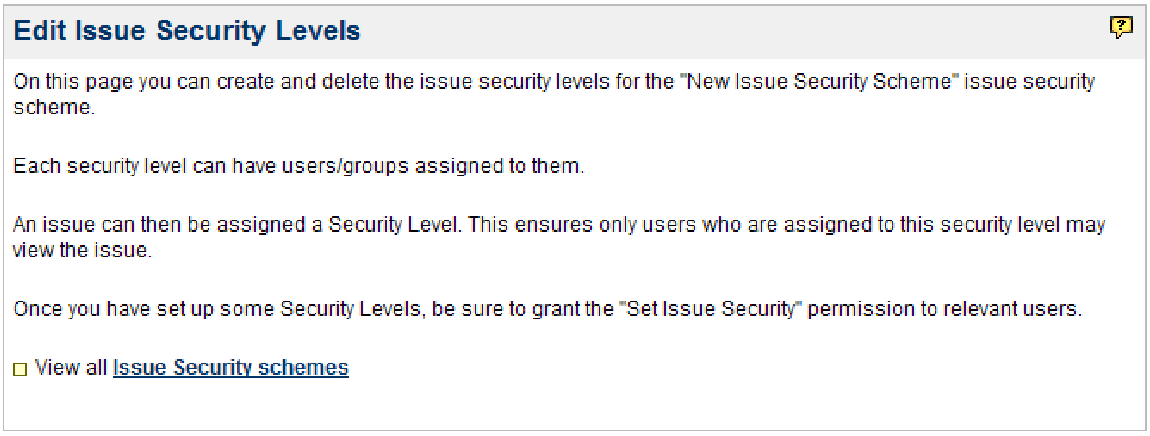


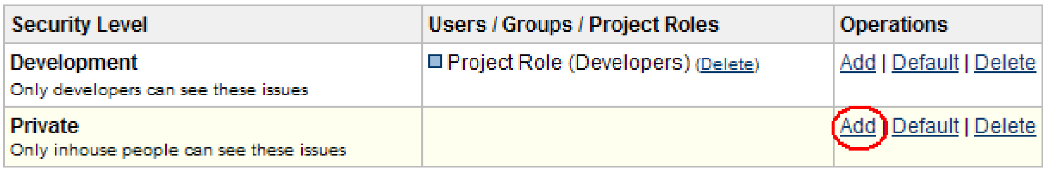
6. The default issue security level for a scheme can be set and removed, as follows:
   - To set the Default Security Level for an issue security scheme, locate the appropriate Security Level and click its '**Default**' link.
   - To remove the Default Security Level for an issue security scheme, click the '**Change default security level to "None"**' link.



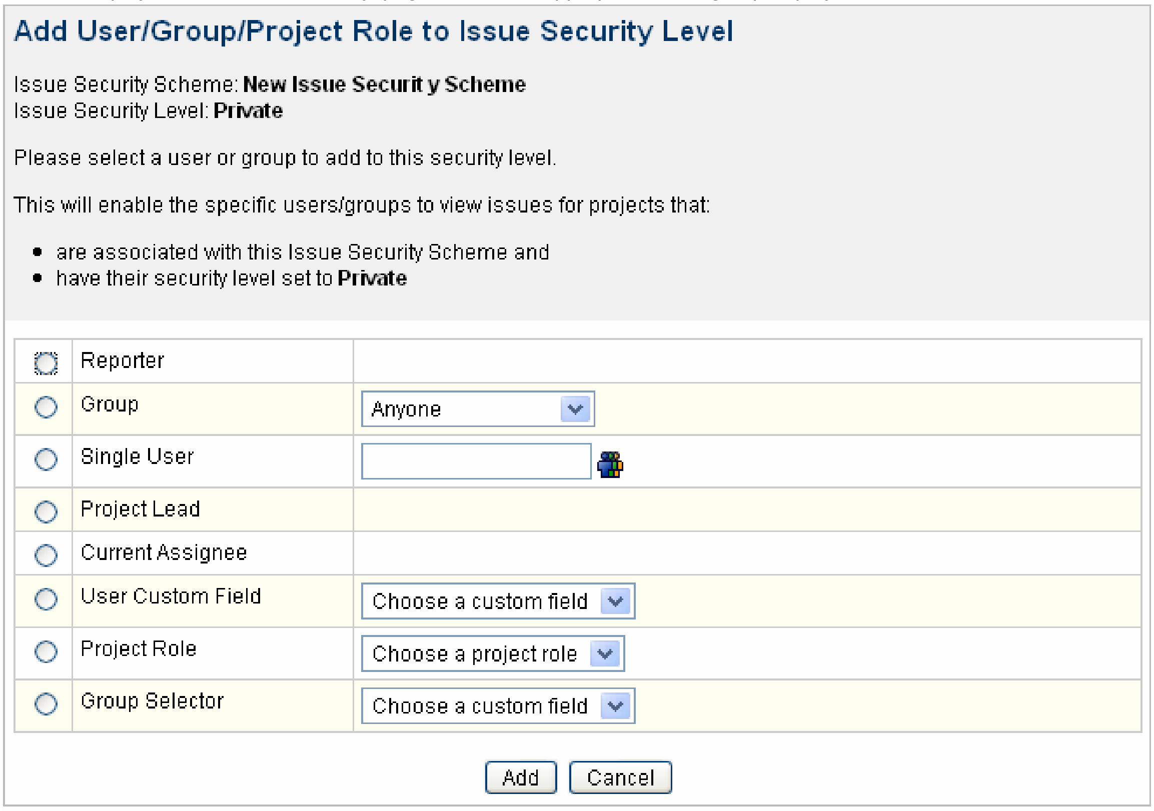
Adding Users/Groups/Project Roles to a Security Level

1. Go to the 'Edit Issue Security Levels' page (see above).
2. Locate the appropriate Security Level and click its '**Add**' link:





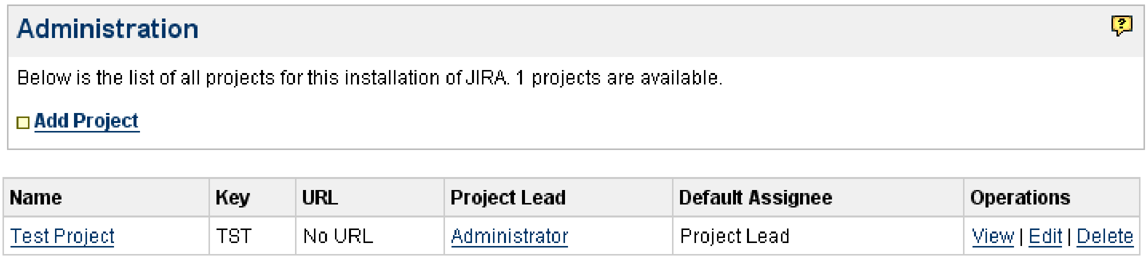
3. This will display the 'Add Issue Security' page. Select the appropriate user, group or project role, then click the '**Add**' button.



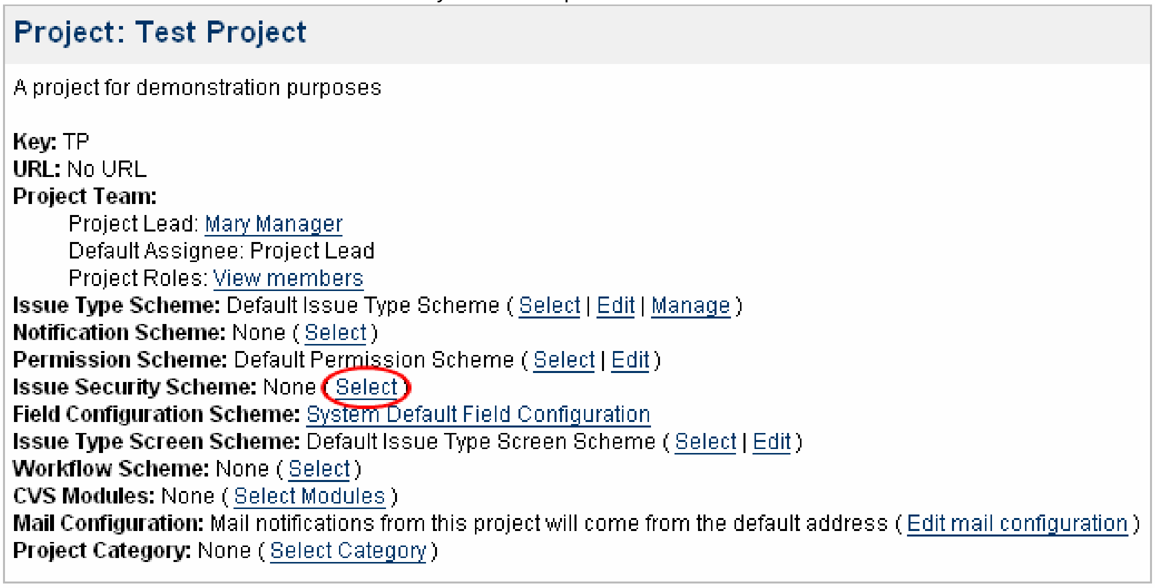
4. Repeat steps 2 and 3 until all appropriate users and/or groups and/or project roles have been added to the security level.

Assigning an Issue Security Scheme to a Project

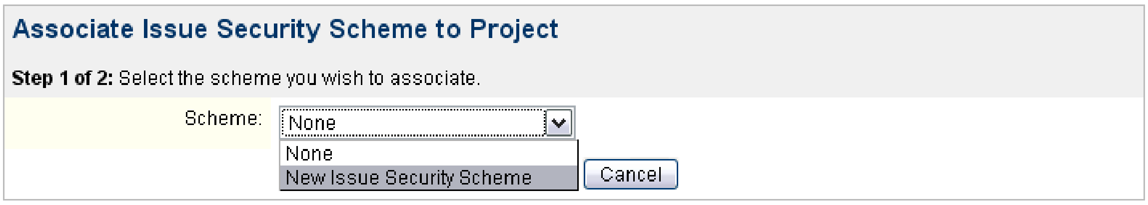
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. A list of projects is displayed



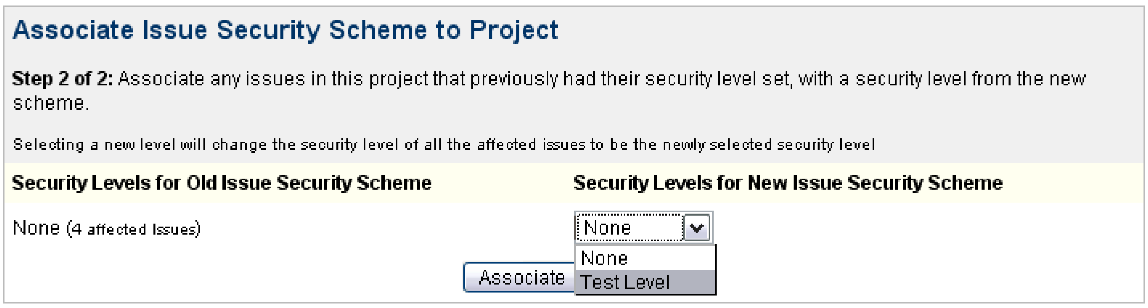
4. Select the project you want by clicking on the project name. This will display the project details
5. Click the '**Select**' link beside the 'Issue Security Scheme' caption.



6. This will bring up a list of Issue Security Schemes. Select the Issue Security Scheme that you want to associate with this project.



7. If there are no previously secured issues (or if the project didn't previously have an issue security scheme), skip the next step.
8. If there are any previously secured issues, select a new security level to replace each old level. All issues with the security level from the old scheme will now have the security level from the new scheme. You can choose 'None' if you want the security to be removed from all previously secured issues.



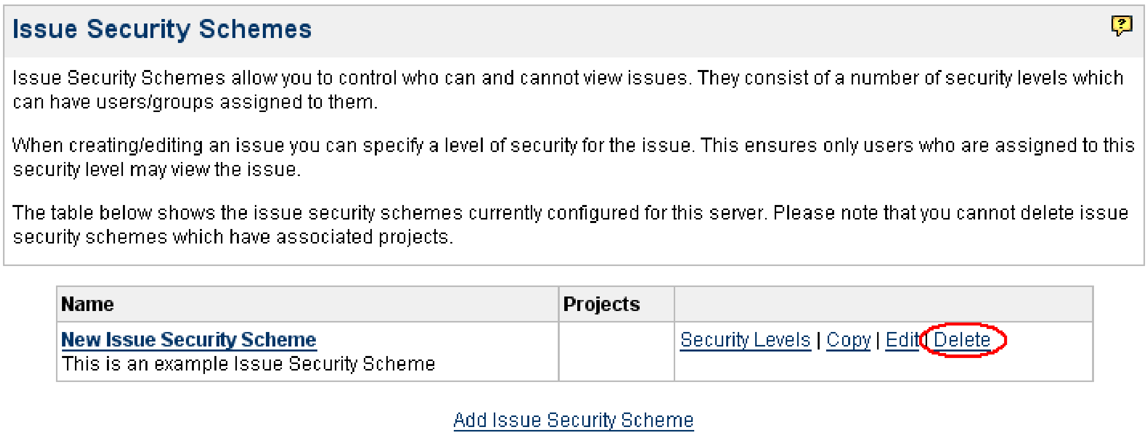
9. Click the '**Associate**' button to associate the project with the issue security scheme.

Deleting an Issue Security Scheme

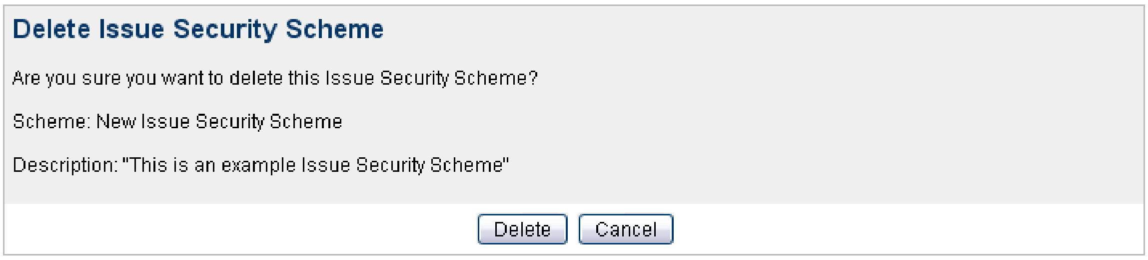
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Schemes', click on the link labelled '**Issue Security Schemes**'.

4. This will display the 'Issue Security Schemes' page. This page lists all of the Issue Security Schemes that JIRA currently has. Click the '**Delete**' link for the scheme that you want to delete.

> You cannot delete a Issue Security Scheme if it is associated with a project; you must first unassign the scheme. To unassign a scheme, please refer to Assigning an Issue Security Scheme.

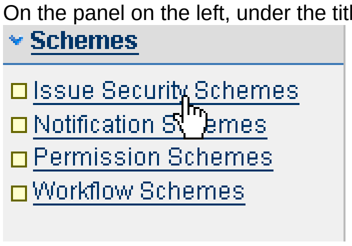


5. A confirmation screen will appear. To delete, click '**Delete**'; otherwise click '**Cancel**'.

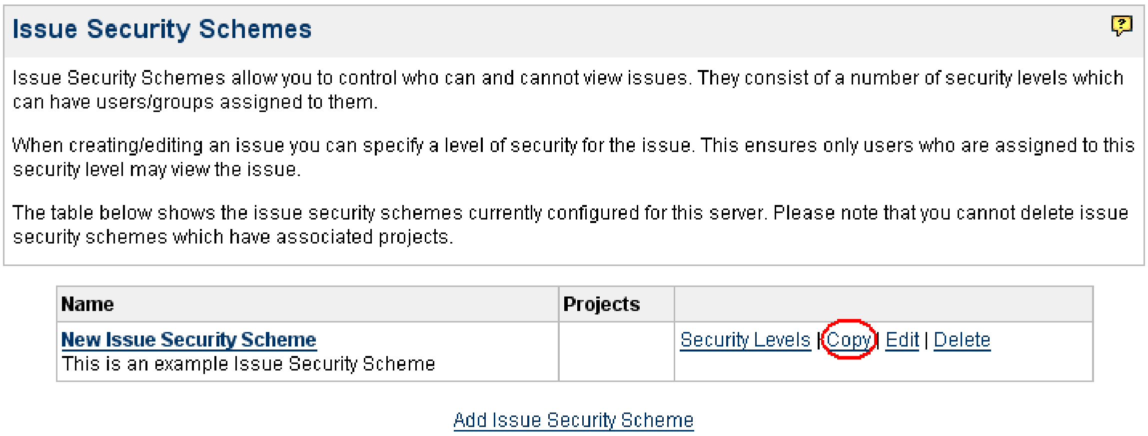


Copying an Issue Security Scheme

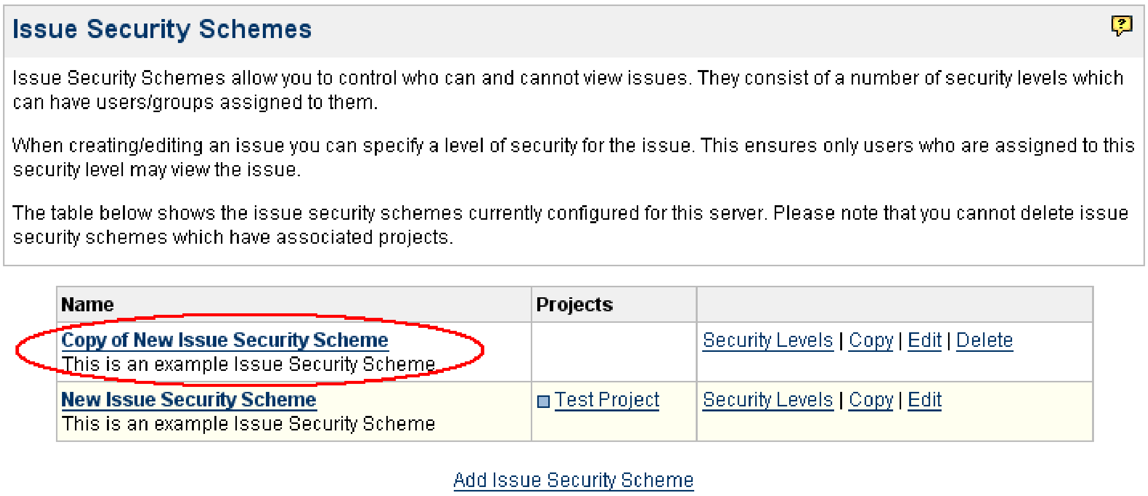
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Schemes', click the link labelled '**Issue Security Schemes**'.



4. This will display the 'Issue Security Schemes' page. This page lists all of the Issue Security Schemes that JIRA currently has. Click the '**Copy**' link for the scheme that you want to copy.



5. A new scheme will be created with the same security levels and the same users/groups/project roles assigned to them.



Additional Resources

- Issue security scheme overview tutorial video — Watch this short tutorial video to see how to use an issue security scheme to restrict the viewing of issues to specified users. Please note the JIRA version and JIRA edition of the tutorial video before watching.

Preventing Security Attacks

This page provides guidelines which, to the best of our knowledge, will help prevent security attacks on your JIRA installation.

On this page:

- 1. Use Strong Passwords
  - 1.1 Administrators should use Strong Passwords
  - 1.2 Administrators should have Different Passwords for Different Systems
- 2. Apply JIRA Security Patches
- 3. Protect Against Brute Force Attack
  - 3.1 Upgrade to JIRA 4.1
  - 3.2 Enable Brute Force Login Protection on your Web Server
- 4. Restrict Network Access to Administrative Sections of Applications
- 5. Restrict File System Access by the Application Server
- 6. Disable Jelly
- 7. Configuring Tomcat to use HttpOnly Session ID Cookies
- See Also

1. Use Strong Passwords

1.1 Administrators should use Strong Passwords

All your JIRA administrators, JIRA system administrators and administrators of all Atlassian products should have strong passwords. Ask your administrators to update their passwords to strong passwords.

Do not use passwords that are dictionary words. Use mixed-case letters, numbers and symbols for your administrator passwords and make sure they are sufficiently long (e.g. 14 characters). We encourage you to refer to the Strong Password Generator for guidelines on selecting passwords.

Using strong passwords greatly increases the time required by an attacker to retrieve your passwords by brute force, making such an attack impractical.

1.2 Administrators should have Different Passwords for Different Systems

As well as choosing a strong password, administrators should have *different* strong passwords for different systems.

This will reduce the impact the attacker can have if they do manage to obtain administrator credentials on one of your systems.

2. Apply JIRA Security Patches

Apply the patches found in JIRA Security Advisory 2010-04-16 for your version of JIRA.

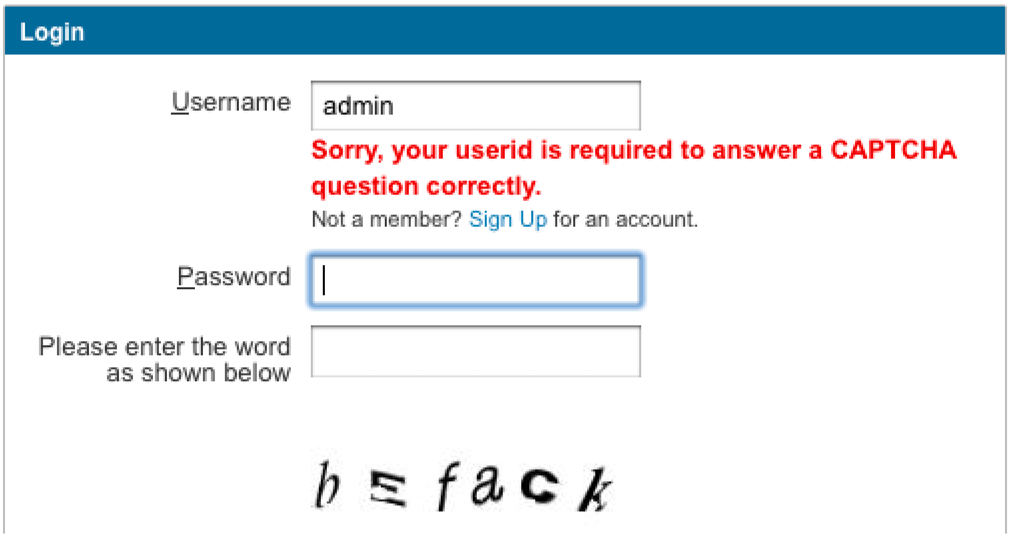
These patches protect JIRA from recently detected privilege escalation and XSS vulnerabilities.

3. Protect Against Brute Force Attack

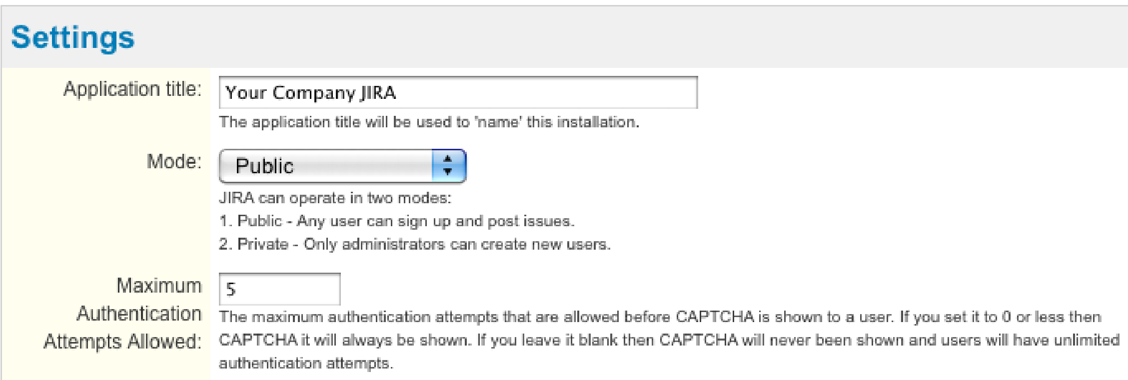
You can also actively protect your systems against repeated unsuccessful login attempts, known as "brute force" login attacks.

3.1 Upgrade to JIRA 4.1

JIRA 4.1 contains built-in protection for brute force attacks by displaying a CAPTCHA after a number of failed authentication attempts.



In JIRA 4.1.1 this option is enabled by default. (Please refer to the JIRA 4.1.1 Upgrade Guide for details.) To enable this protection in JIRA 4.1, log in as an administrator and navigate to Administration -> General Configuration and set the "Maximum Authentication Attempts Allowed" to a small number (e.g. 5).



For more details, see Configuring JIRA Options.

3.2 Enable Brute Force Login Protection on your Web Server

It is possible to also enable brute force login protection on your web server by detecting repeated authentication failures in application logs. Once repeated login failures have been detected, you can set up an automated system to ban access to your web server from that particular IP address.

For more information on how to configure an automated approach to this kind of login prevention, refer to Using Fail2Ban to limit login attempts.

4. Restrict Network Access to Administrative Sections of Applications

An Atlassian application's administration interface is a critical part of the application; anyone with access to it can potentially compromise not only the application instance but the entire machine. As well as limiting access to only users who really need it, and using strong passwords, you should consider limiting access to it to certain machines on the network.

For more information on how to implement Apache blocking rules to restrict access to administrative or sensitive actions in:

- JIRA, refer to Using Apache to Limit Access to the JIRA Administration Interface
- Confluence, refer to Using Apache to limit access to the Confluence administration interface

You can use a similar approach to protecting all Atlassian applications.

5. Restrict File System Access by the Application Server

The application server (e.g. Tomcat) runs as a process on the system. This process is run by a particular user and inherits the file system rights of that particular user. By restricting the directories that can be written to by the application server user, you can limit unnecessary exposure of your file system to the application.

For example, in the JIRA Standalone (or WAR distribution on Tomcat), ensure that only the following directories can be written to by Tomcat:

- logs
- temp
- work
- database (this directory will be created the first time you run JIRA)
- your JIRA Home directory

For detailed instructions, please see Tomcat security best practices.

6. Disable Jelly

Jelly is disabled in JIRA by default. If you need to use Jelly, you should enable it immediately prior to use and disable it immediately afterwards. See the JIRA Jelly Tags documentation for details.

7. Configuring Tomcat to use HttpOnly Session ID Cookies

JIRA Standalone distributions from version 4.1.2 now enforce the HttpOnly flag on session ID cookies by default, as a means to minimise the risk of common XSS attacks. For more information about this feature, please refer to the JIRA Security Advisory 2010-06-18.

If you are running the JIRA EAR-WAR distribution on Tomcat (version 5.5.27+ or another application server that is unsupported), it is likely that JIRA's session ID cookies will not be transmitted with the HttpOnly flag. Hence, to mitigate the risk of common XSS attacks, we recommend that you configure your application server to transmit HttpOnly session ID cookies.

To configure your JIRA EAR-WAR distribution running on Tomcat to use HttpOnly Session ID Cookies:

1. Shutdown the JIRA service running on Tomcat and the Tomcat application server.
2. Open the `context.xml` file of the Tomcat installation running JIRA in a text editor.
   This file is typically located in the `conf` subdirectory of the main Tomcat installation directory.
3. Add the following `Manager` element within the `Context` element of this file:

   ```
   ...
   <Context>
     ...
     <Manager useHttpOnly="true"/>
     ...
   </Context>
   ...
   ```

   To disable HttpOnly Session ID cookies, either remove this `Manager` element or change the value of its `useHttpOnly` parameter to `false`.
4. Save your changes to the `context.xml` file and restart JIRA.

See Also

If you suspect that your publicly accessible JIRA installation has been compromised by a security attack, please refer to our detection guide for more information on how to identify signs of attack.

Managing Project Permissions

On this page:

- Permission Schemes
  - What is a Permission Scheme?
  - Why Permission Schemes?

- Creating a Permission Scheme
- Adding Users, Groups or Roles to a Permission Scheme
- Associating a Permission Scheme with a Project
- Deleting a Permission Scheme
- Copying a Permission Scheme
- Additional Resources

Project permissions are created within Permission Schemes, which are then assigned to specific projects.

Project permissions can be granted to:

- Individual users
- Groups
- Project roles
- Issue roles such as 'Reporter', 'Project Lead' and 'Current Assignee'
- 'Anyone' (e.g. to allow anonymous access)
- A (multi-)user picker custom field.
- A (multi-)group picker custom field. This can either be an actual group picker custom field, or a (multi-)select-list whose values are group names.

The following table lists the different types of project permissions and the functions they secure. Note that project permissions can also be used in workflow conditions.

Project Permission	Explanation
Add Comments	Permission to add comments to issues. Note that this does not include the ability to edit or delete comments.
Administer Projects	Permission to administer a project in JIRA. This includes the ability to edit project role membership, project components, project versions and some project details ('Project Name', 'URL', 'Project Lead', 'Project Description').
Assign Issues	Permission to assign issues to users. (See also Assignable User permission below)
Assignable User	Permission to be assigned issues. (Note that this does not include the ability to assign issues; see Assign Issue permission above).
Browse Projects	Permission to browse projects, use the Issue Navigator and view individual issues (except issues that have been restricted via Issue Security). **Many other permissions are dependent on this permission**, e.g. the 'Work On Issues' permission is only effective for users who also have the 'Browse Projects' permission.
Close Issues	Permission to close issues. (This permission is useful where, for example, developers resolve issues and testers close them). Also see the Resolve Issues permission.
Create Attachments	Permission to attach files to an issue. (Only relevant if attachments are enabled). Note that this does not include the ability to delete attachments.
Create Issues	Permission to create issues in the project. (Note that the Create Attachments permission is required in order to create attachments.) Includes the ability to create sub-tasks (if sub-tasks are enabled).
Delete All Attachments	Permission to delete any attachments, regardless of who added them.
Delete All Comments	Permission to delete any comments, regardless of who added them.
Delete All Worklogs	Permission to delete any worklog entries, regardless of who added them. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.
Delete Issues	Permission to delete issues. Think carefully about which groups or project roles you assign this permission to; usually it will only be given to administrators. Note that deleting an issue will delete all of its comments and attachments, even if the user does not have the Delete Comments or Delete Attachments permissions. However, the Delete Issues permission does not include the ability to delete individual comments or attachments.
Delete Own Attachments	Permission to delete attachments that were added by the user.
Delete Own Comments	Permission to delete comments that were added by the user.
Delete Own Worklogs	Permission to delete worklog entries that were added by the user. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.
Edit All Comments	Permission to edit any comments, regardless of who added them.
Edit All Worklogs	Permission to edit any worklog entries, regardless of who added them. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.

Edit Issues	Permission to edit issues (excluding the 'Due Date' field — see the Schedule Issues permission). Includes the ability to convert issues to sub-tasks and vice versa (if sub-tasks are enabled). Note that the Delete Issue permission is required in order to delete issues. The Edit Issue permission is usually given to any groups or project roles who have the Create Issue permission (perhaps the only exception to this is if you give **everyone** the ability to create issues — it may not be appropriate to give everyone the ability to edit too). Note that all edits are recorded in the Issue Change History for audit purposes.
Edit Own Comments	Permission to edit comments that were added by the user.
Edit Own Worklogs	Permission to edit worklog entries that were added by the user. (Only relevant if Time Tracking is enabled). Also see the Work On Issues permission.
Link Issues	Permission to link issues together. (Only relevant if Issue Linking is enabled).
Manage Watcher List	Permission to manage (i.e. view/add/remove users to/from) the watcher list of an issue.
Modify Reporter	Permission to modify the 'Reporter' of an issue. This allows a user to create issues 'on behalf of' someone else. This permission should generally only be granted to administrators.
Move Issues	Permission to move issues from one project to another, or from one workflow to another workflow within the same project. Note that a user can only move issues to a project for which they have Create Issue permission.
Resolve Issues	Permission to resolve and reopen issues. This also includes the ability to set the 'Fix For version' field for issues. Also see the Close Issues permission.
Schedule Issues	Permission to schedule an issue — that is, set and edit the 'Due Date' of an issue.
Set Issue Security	Permission to set the security level on an issue to control who can access the issue. Only relevant if issue security has been enabled.
View Version Control	Permission to view the version control information (e.g. CVS, Subversion, FishEye, etc) for an issue. Note that for CVS, to view the Version Control information the project needs to be associated with at least one Repository.
View Voters and Watchers	Permission to view the voter list and watcher list of an issue. Also see the Manage Watcher List permission.
Work On Issues	Permission to log work against an issue, i.e. create a worklog entry. (Only relevant if Time Tracking is enabled).

Permission Schemes

What is a Permission Scheme?

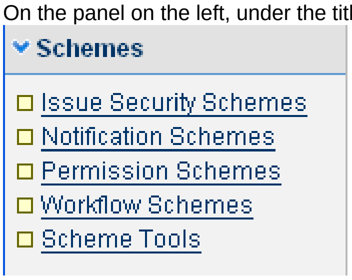
A permission scheme is a set of user/group/role assignments for the project permissions listed above. Every project has a permission scheme. One permission scheme can be associated with multiple projects.

Why Permission Schemes?

In many organisations, multiple projects have the same needs regarding access rights. (For example, only the specified project team may be authorised to assign and work on issues).

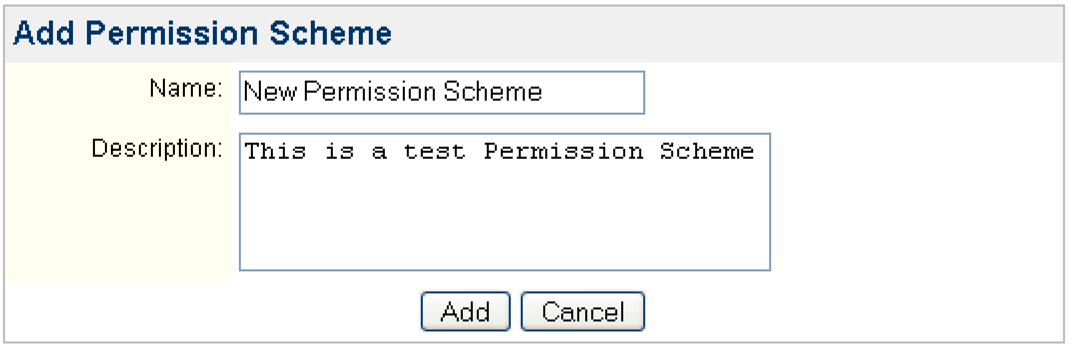
Permission schemes prevent having to set up permissions individually for every project. Once a permission scheme is set up it can be applied to all projects that have the same type of access requirements.

Creating a Permission Scheme

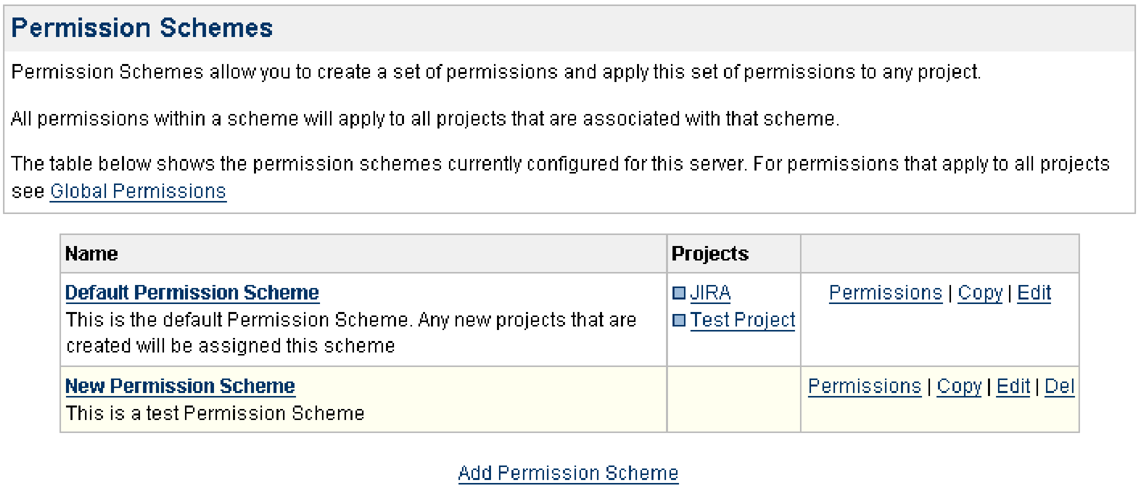
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title '**Schemes**', click the link labelled '**Permission Schemes**'.


4. This will display the 'Permission Schemes' page. This page lists all of the Permission Schemes that JIRA currently has. Click the '**Add Permission Scheme**' link.

5. In the 'Add Permission Scheme' form, enter a name for the scheme, and a short description of the scheme. Click the '**Add**' button.

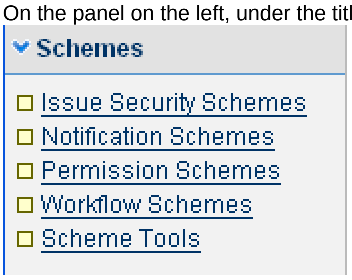


6. You will return to the 'Permission Schemes' page which now contains the newly added scheme.

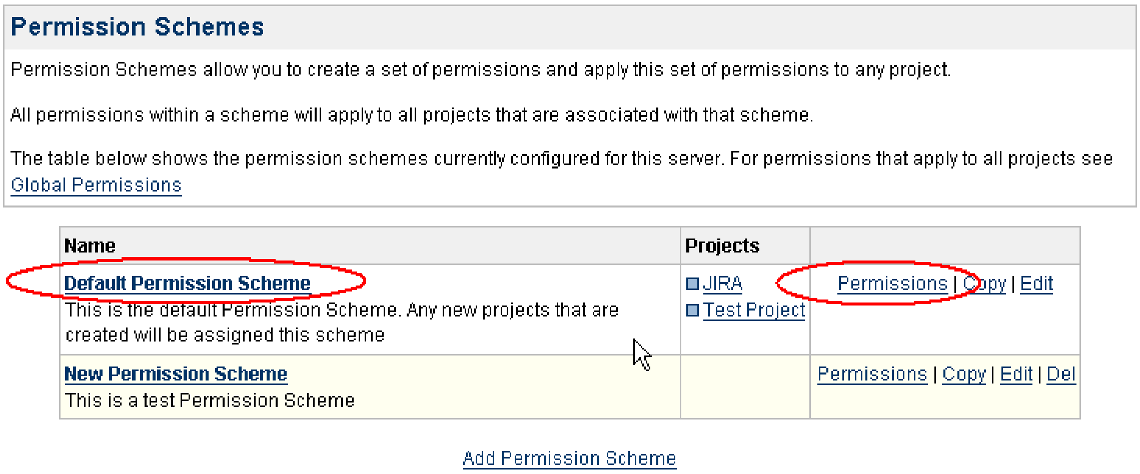


Adding Users, Groups or Roles to a Permission Scheme

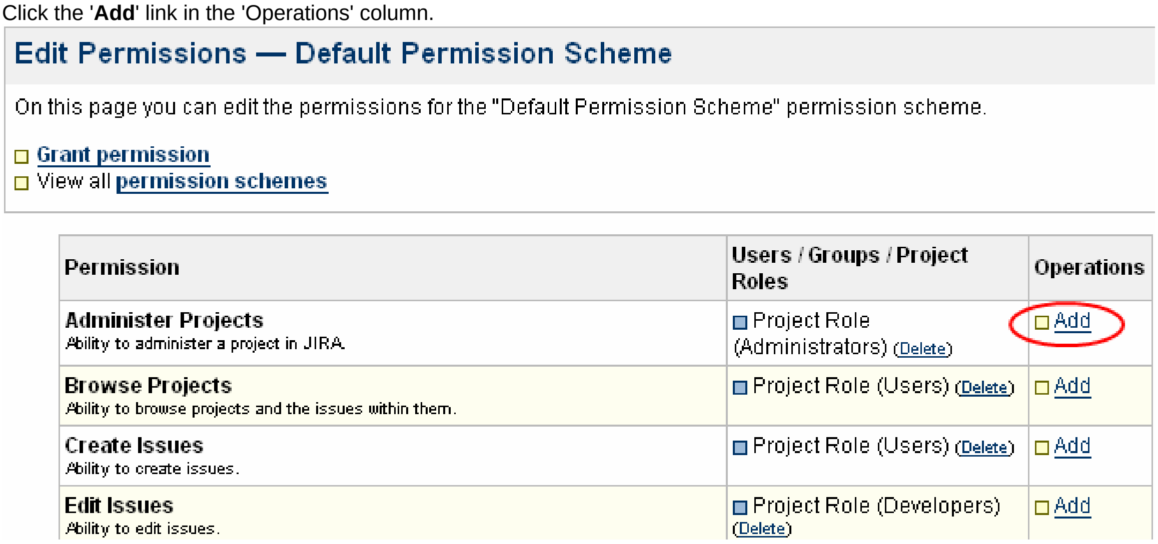
1. On the panel on the left, under the title 'Features', click the link labelled '**Permission Schemes**'.



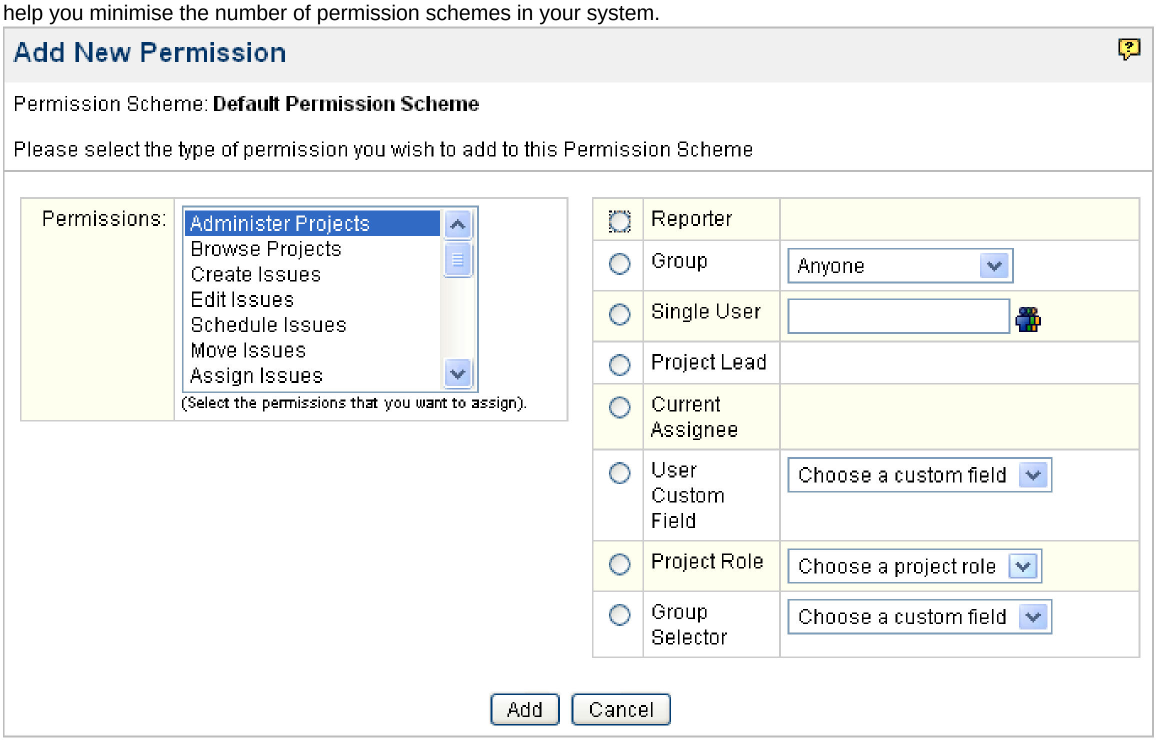
2. Click the '**Permissions**' link or on the name of the Permission Scheme to show a list of permissions



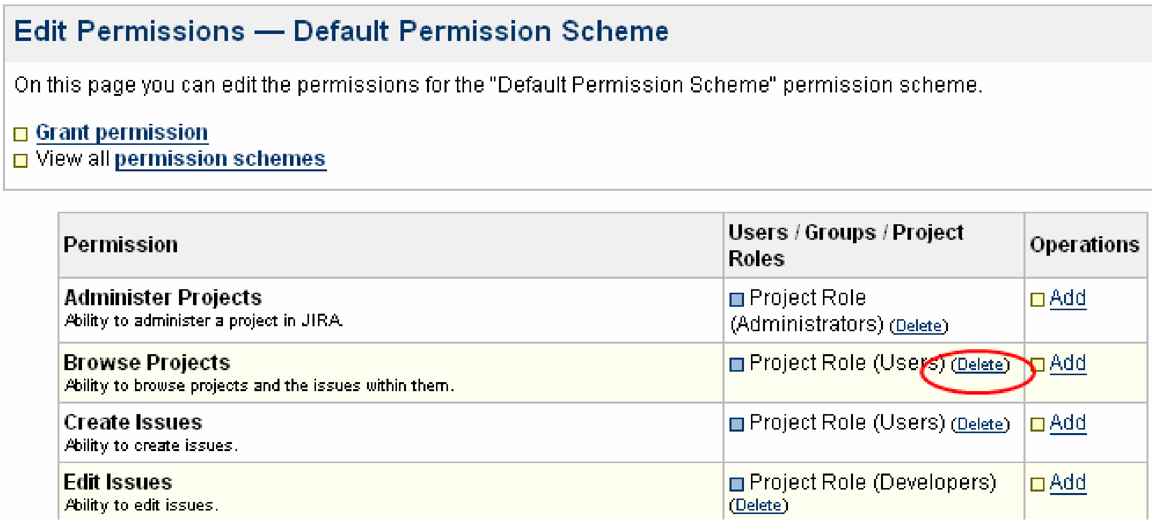
3. Click the '**Add**' link in the 'Operations' column.



4. This will display the 'Add Permission' page. After selecting one or more permissions to add and who to add the selected permissions to, click the '**Add**' button. The users/groups/roles will now be added to the selected permissions. Note that project roles are useful for defining specific team members for each project. Referencing project roles (rather than users or groups) in your permissions can help you minimise the number of permission schemes in your system.

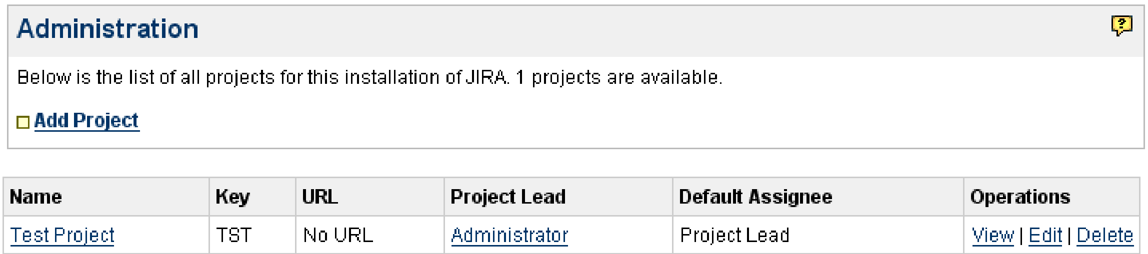


5. Repeat the last 2 steps until all required users/groups/roles have been added to the permissions.
6. To delete a user/group/role from a permission click the '**Delete**' link in the "Users / Groups / Roles" column.

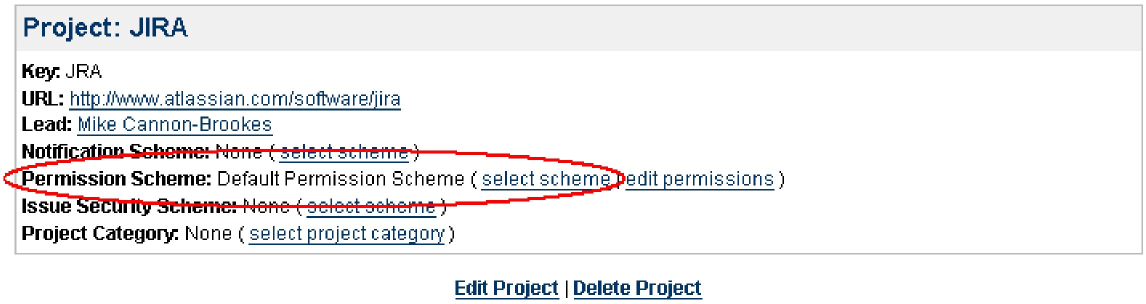


Associating a Permission Scheme with a Project

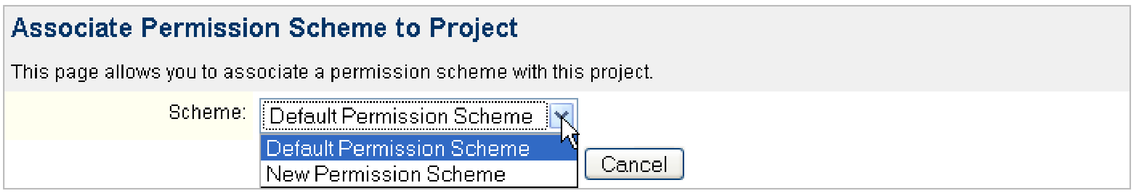
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. A list of projects is displayed



4. Select the project you want by clicking on the project name. This will display the project details
5. Click the '**select scheme**' link beside the Permission Scheme caption.



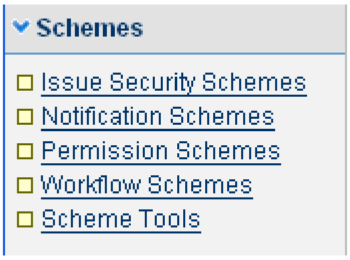
6. This will bring up a list of Permission Schemes. Select the Permission Scheme that you want to associate with this project.



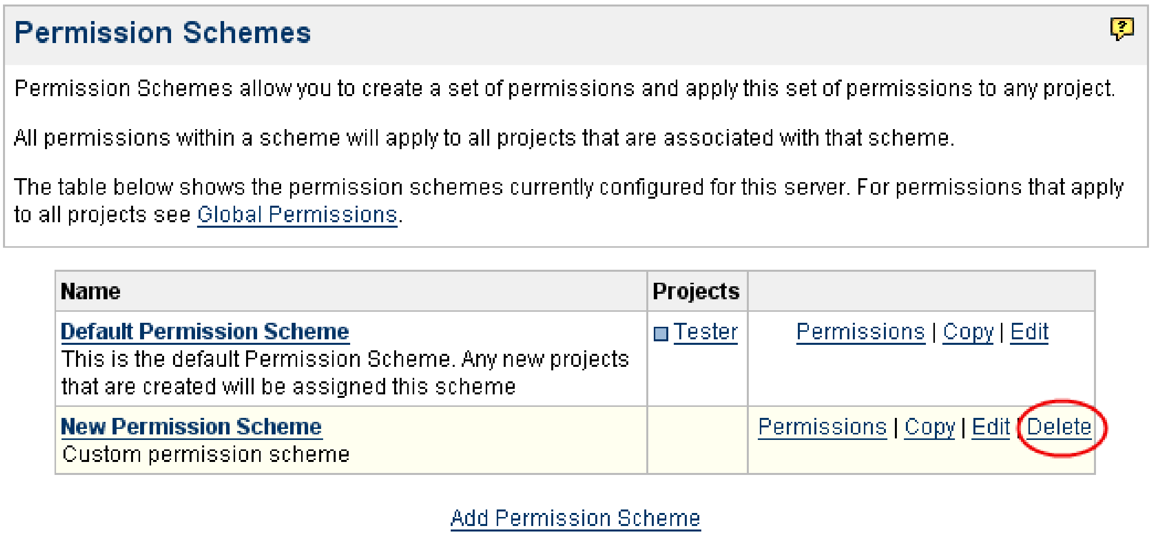
7. Click the '**Associate**' button to associate the project with the permission scheme.

Deleting a Permission Scheme

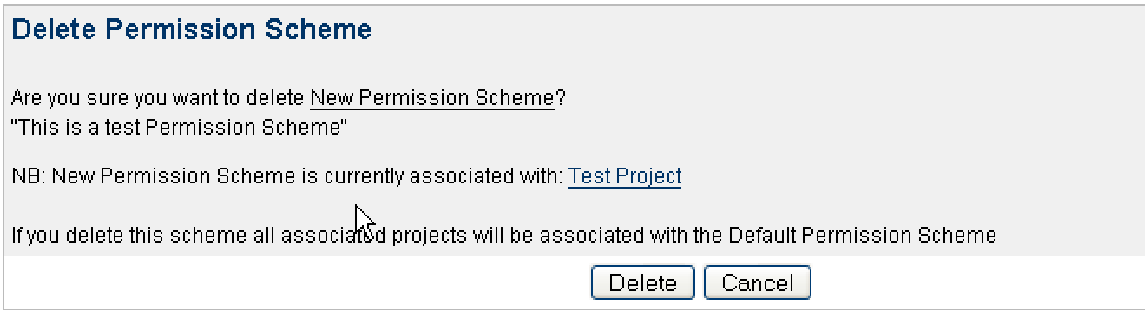
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Features', click the link labelled '**Permission Schemes**'.



4. This will display the 'Permission Schemes' page. This page lists all the Permission Schemes that are currently defined in your JIRA system. Click the '**Delete**' link for the scheme that you want to delete.



5. A confirmation screen will appear. To delete click '**Delete**' otherwise click '**Cancel**'.

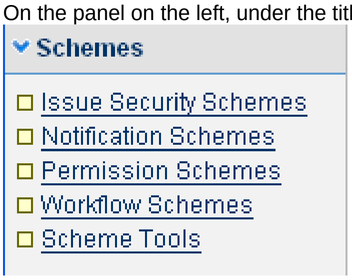


6. The scheme will be deleted and all associated projects will be automatically associated with the Default Permission Scheme. (Note that you cannot delete the Default Permission Scheme.)

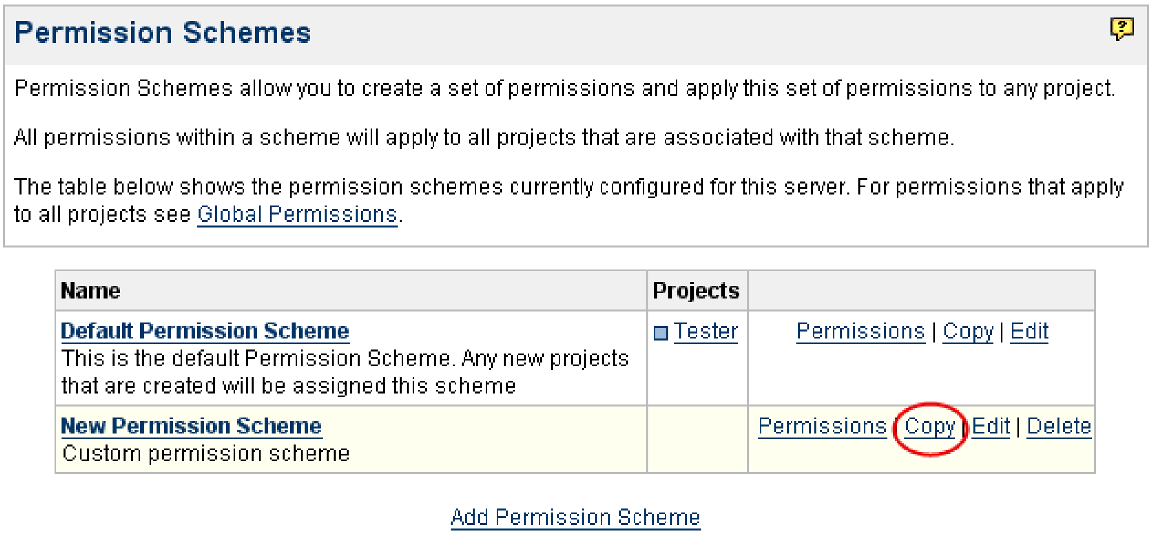
See also Minimising the number of Permission Schemes and Notification Schemes.

Copying a Permission Scheme

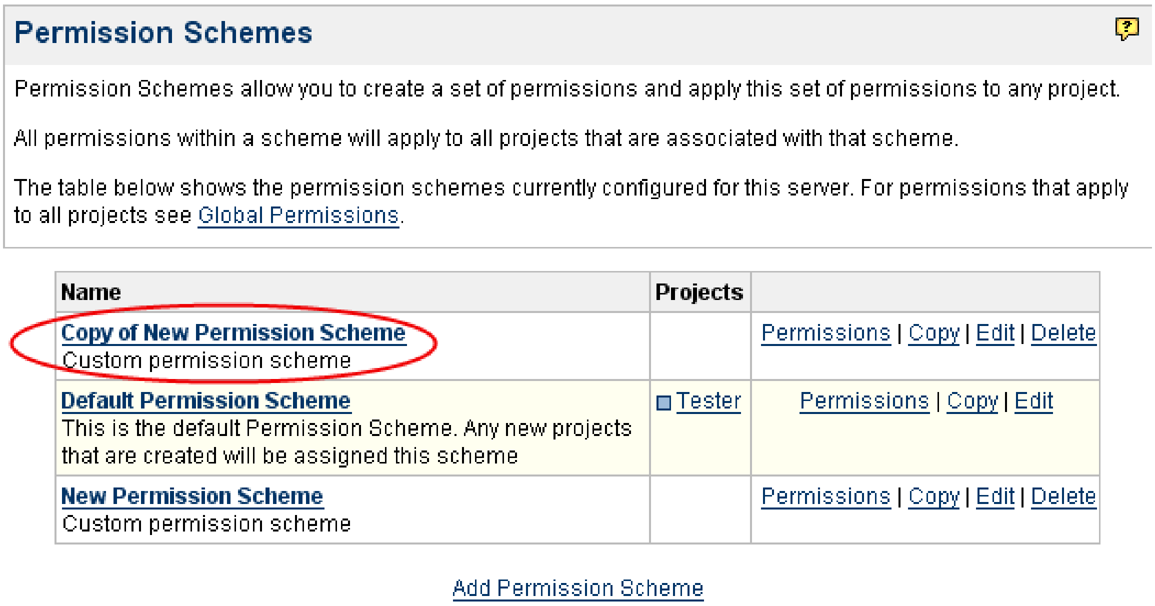
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Features', click the link labelled '**Permission Schemes**'.



4. This will display the 'Permission Schemes' page. This page lists all of the Permission Schemes that JIRA currently has. Click the '**Copy**' link for the scheme that you want to copy.



5. A new scheme will be created with the same permissions and the same users/groups/roles assigned to them.



Additional Resources

- Permission scheme overview tutorial video - Watch this short tutorial video to see how to set up a new permission scheme to control which users can perform which operations on an issue. Please note the JIRA version of the tutorial video before watching.

Managing Global Permissions

Global permissions are system wide and are granted to groups of users.

> See also project permissions, which apply to individual projects.

This table lists the different global permissions and the functions they secure:

Global Permission	Explanation
JIRA System Administrators	Permission to perform all JIRA administration functions. ⚠ does not include **JIRA Users** permission. A user with **JIRA System Administrators** will be able to log in to JIRA without the **JIRA Users** permission, but may not be able to perform all regular user functions (e.g. edit their profile) unless they also belong to a group that has the **JIRA Users** permission.
JIRA Administrators	Permission to perform most JIRA administration functions (see list of exclusions below). ⚠ does not include **JIRA Users** permission. A user with **JIRA Administrators** will be able to log in to JIRA without the **JIRA Users** permission, but may not be able to perform all regular user functions (e.g. edit their profile) unless they also belong to a group that has the **JIRA Users** permission.

JIRA Users	Permission to log in to JIRA. Granting the **JIRA Users** permission to a group also means that all newly created users will be automatically added to that group, unless the group has the **JIRA System Administrators** permission (as it would be unwise to automatically grant the **JIRA System Administrators** permission to all new users).
Browse Users	Permission to view a list of all JIRA user names and group names. Used for selecting users/groups in popup screens (such as the 'User Picker').
Create Shared Object	Permission to share a filter or dashboard globally or with groups of users.
Manage Group Filter Subscriptions	Permission to manage (create and delete) group filter subscriptions.
Bulk Change	Permission to execute the bulk operations within JIRA: - Bulk Edit * - Bulk Move * - Bulk Workflow Transition - Bulk Delete * (* subject to project-specific permissions.) The decision to grant the **Bulk Change** permission should be considered carefully. This permission grants users the ability to modify a collection of issues at once. For example, in JIRA installations configured to run in Public mode (i.e. anybody can sign up and create issues), a user with the **Bulk Change** global permission and the **Add Comments** project permission could comment on *all* accessible issues. Undoing such modifications may not be possible through the JIRA application interface and may require changes made directly against the database (which is not recommended).

About 'JIRA System Administrators' and 'JIRA Administrators'

People who have the **JIRA System Administrators** permission can perform all of the administration functions in JIRA, while people who have only the **JIRA Administrators** permission cannot perform functions which could affect the application environment or network. This is useful for organisations which need to delegate some administrative privileges (e.g. creating users, creating projects) to particular people, without granting them complete rights to administer the JIRA system.

By default, the `jira-administrators` group has both the **JIRA Administrators** permission *and* the **JIRA System Administrators** permission. If you need some people to have only the **JIRA Administrators** permission (and not the **JIRA System Administrators** permission), you will need to use two separate groups, e.g.:

1. Create a new group (e.g. called `jira-system-administrators`).
2. Add to the `jira-system-administrators` group everyone who needs to have the **JIRA System Administrators** permission.
3. Grant the **JIRA System Administrators** permission to the `jira-system-administrators` group.
4. Remove the **JIRA System Administrators** permission from the `jira-administrators` group.
5. *(Optional, but recommended for ease of maintenance)* Remove from the `jira-administrators` group everyone who is a member of the `jira-system-administrators` group.

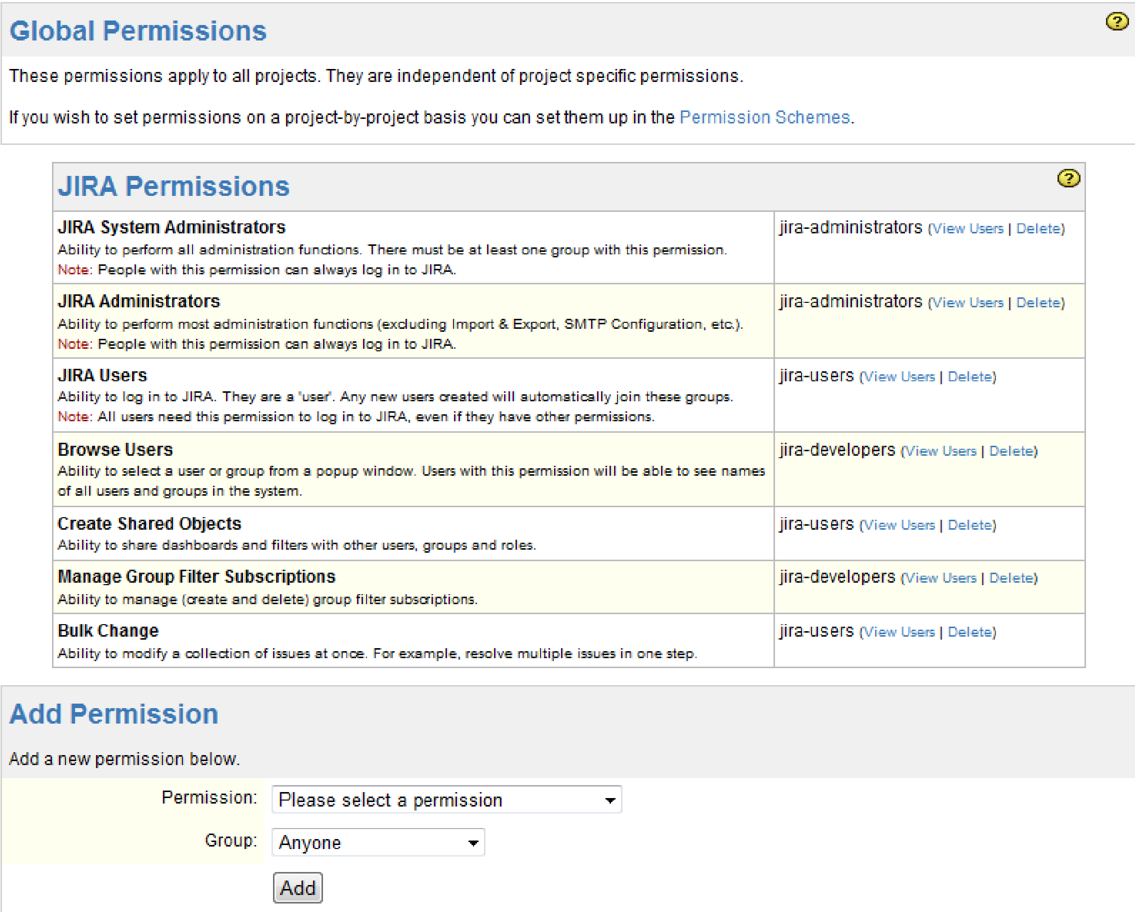
People who have the **JIRA Administrators** permission (and not the **JIRA System Administrators** permission) ***cannot*** do the following:

- Configure SMTP email (but *they can* configure POP/IMAP, and fully administer email notification schemes).
- Configure a CVS source code repository (but *they can* associate a project with a configured repository).
- Configure listeners.
- Configure services.
- Change the index path (but *they can* reindex and optimise the index).
- Run the integrity checker.
- Access logging and profiling information.
- Access the scheduler.
- Export/backup JIRA data to XML.
- Import/restore JIRA data from XML.
- Import XML workflows into JIRA.
- Configure attachments (but *they can* set the size limits of attachments and enable thumbnails).
- Enable trackbacks.
- Run Jelly scripts.
- Add gadgets to the Gadget Directory.
- Configure user directories (e.g. LDAP).
- Configure Application Links (but *they can* configure Entity Links).
- View user sessions.
- Access license details.
- Grant/revoke the **JIRA System Administrators** global permission.
- Edit (or Bulk Edit) groups that have the **JIRA System Administrators** global permission.
- Edit, change the password of or delete a user who has the **JIRA System Administrators** global permission.

It is recommended that people who have the **JIRA Administrators** permission (and not the **JIRA System Administrators** permission) are not given direct access to the JIRA filesystem or database.

Granting global permissions

1. Log in as a user with the **JIRA Administrators** global permission (or the **JIRA System Administrators** global permission, if you need to grant the **JIRA System Administrators** global permission).
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the **Administration** box on the dashboard.
3. In the panel on the left, under the title **Global Settings**, click the link labelled '**Global Permissions**'. The **Global Permissions** page will be displayed, showing a list of the global permissions and which groups currently have them:



   The **Add Permission** box is shown below the list.
4. In the **Permission** drop-down list, select the global permission you wish to grant.
5. In the **Group** drop-down list, either:
   - select the group to which you wish to grant the permission; or
   - if you wish to grant the permission to non logged-in users, select **Anyone** (not recommended for production systems). Note that the **JIRA Users** permission (i.e. permission to log in) cannot be granted to **Anyone** (i.e. to non logged-in users) since this would be contradictory.

> If you have a user limited license (e.g. personal license) and have reached your user limit, you will not be able to grant login permissions (i.e. jira-users permission) to any further groups without first reducing the number of users with login permissions.

Configuring Secure Administrator Sessions

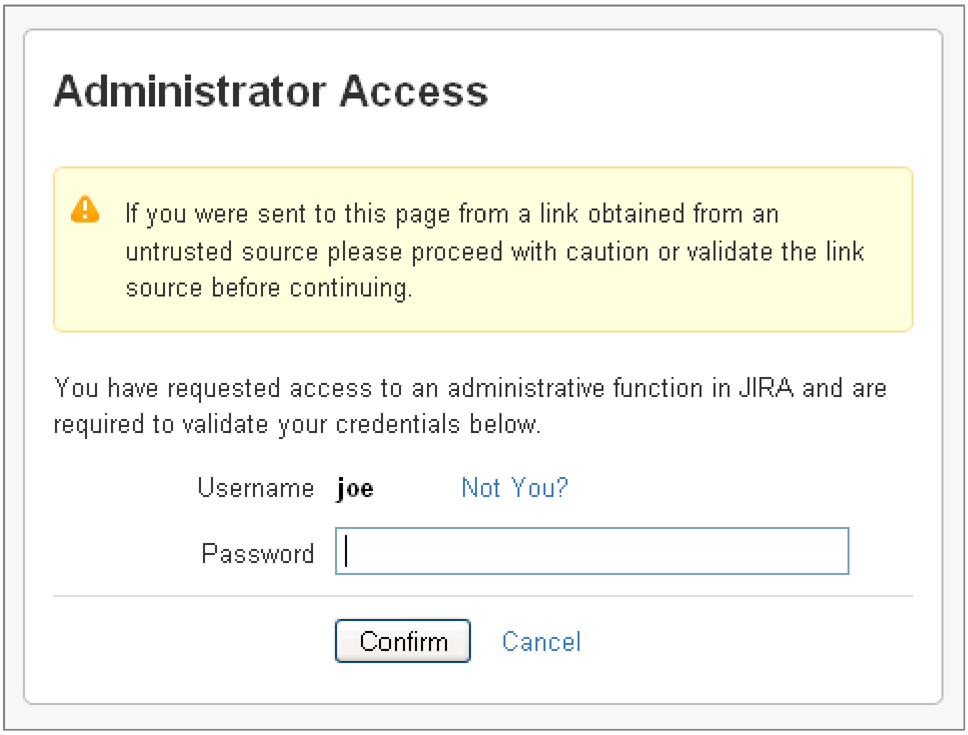
On this page:

- About Secure Administrator Sessions
- Manually ending a Secure Administrator Session
- Disabling Secure Administrator Sessions
- Changing the Timeout
- Developer Notes

About Secure Administrator Sessions

JIRA protects access to its administrative functions by requiring a secure administration session in order to use the JIRA administration screens. (This is also known as websudo.) When a JIRA administrator (who is logged into JIRA) attempts to access an administration function, they are prompted to log in again. This logs the administrator into a temporary secure session that grants access to the JIRA administration screens.

Screenshot: log in to temporary secure session



The temporary secure session has a rolling timeout (defaulted to 10 minutes). If there is no activity by the administrator in the JIRA administration screens for a period of time that exceeds the timeout, then the administrator will be logged out of the secure administrator session (note that they will remain logged into JIRA). If the administrator does click an administration function, the timeout will reset.

Note that Project Administration functions (as defined by the 'Project Administrator' permission) do not require a secure administration session.

Manually ending a Secure Administrator Session

An administrator can choose to manually end their secure session by clicking the '**drop access**' link in the banner displayed at the top of their screen.

Disabling Secure Administrator Sessions

Secure administrator sessions (i.e. password confirmation before accessing administration functions) are enabled by default. If this causes issues for your JIRA site (e.g. if you are using a custom authentication mechanism), you can disable this feature by editing the following line in the jira-application.properties file:

```
jira.websudo.is.disabled = false
```

Changing the Timeout

To change the number of minutes of inactivity after which a secure administator session will time out, edit the following line in the jira-application.properties file:

```
jira.websudo.timeout = 10
```

Developer Notes

If you have written a plugin that has webwork actions in the JIRA Administration section, those actions should have the `@WebSudoRequired` annotation added to the class (not the method or the package, unlike Confluence).

Please also see Developing against JIRA with Secure Administrator Sessions and Adding WebSudo Support to your Plugin.

Configuring Fields and Screens

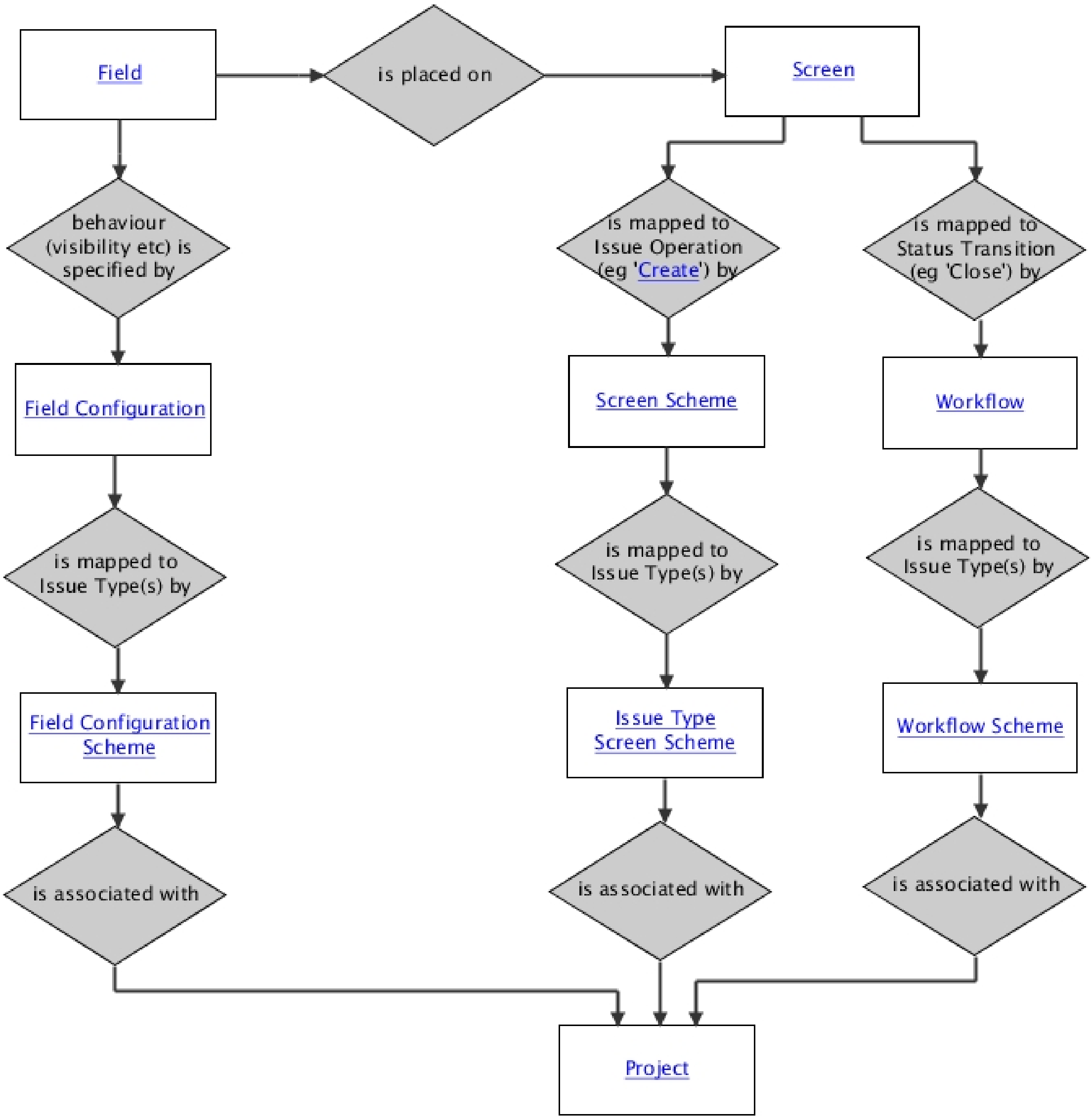
On this page:

- Diagram: How Fields, Screens and Workflow interrelate
- Overview
- Concepts

In this section:

- Configuring Built-in Fields
    - Defining 'Issue Type' Field Values
        - Associating Issue Types with Projects
    - Defining 'Priority' Field Values
    - Defining 'Resolution' Field Values
    - Defining 'Status' Field Values
    - Translating Resolutions, Priorities, Statuses and Issue Types
- Adding a Custom Field
    - Configuring a Custom Field
    - Creating Help for a Custom Field
- Specifying Field Behaviour
    - Associating Field Behaviour with Issue Types
    - Configuring Renderers
- Defining a Screen
    - Associating a Screen with an Issue Operation
    - Associating a Screen with an Issue Type

Diagram: How Fields, Screens and Workflow interrelate



Overview

To help you tailor JIRA to your organisation's needs, JIRA enables you to manipulate the display and behaviour of issue fields ('Summary', 'Description', 'Issue Type', etc). You can:

- Change a field's description
- Make a field hidden or visible
- Make a field required or optional
- Add your own values for 'Issue Type', 'Priority', 'Resolution' and 'Status'

- Create new 'custom' fields
- Enable a rich text renderer for (some) fields
- Position fields on a screen
- Choose which screen should be displayed for each issue operation (e.g. 'Create Issue', 'Edit Issue') or workflow transition (e.g. 'Resolve Issue', 'Close Issue')

Concepts

Some key JIRA concepts include:

- Field Configuration --- a set of definitions for all fields, comprising: each field's description; whether each field is hidden or visible; whether each field is required or optional; and what type of renderer to use for each text field.
- Screen — defines which fields are present on a screen, and their order. (Note that a hidden field can be present on a screen, but will still be invisible.)
- Screen Scheme — associates different screens with different issue operations (e.g. 'Create Issue', 'Edit Issue', 'View Issue').
- Issue Type Screen Scheme — associates Screen Schemes with issue types and projects. This allows you to specify different Screens for the same operation (e.g. 'Create Issue') in the same project for issues of different types. For example, you could use one screen when creating an issue of type 'Bug', and a different screen when creating an issue of type 'Task'.
- Field Configuration Scheme — associates Field Configurations with issue types and projects. This allows you to specify different field behaviour for the same field in the same project for issues of different types.
- Issue Type Scheme — associates issue types with projects.

Configuring Built-in Fields

Each issue has a number of built-in fields, as shown in the sample issue in the *JIRA User's Guide*.

Some of the built-in fields can be customised as follows:

- Defining 'Issue Type' Field Values
    - Associating Issue Types with Projects
- Defining 'Priority' Field Values
- Defining 'Resolution' Field Values
- Defining 'Status' Field Values
- Translating Resolutions, Priorities, Statuses and Issue Types

Defining 'Issue Type' Field Values

JIRA ships with a set of default 'Issue Types' to help you get started. Everyone's needs are different and so JIRA also allows you to add, edit and delete your own custom Issue Types.

On this page:

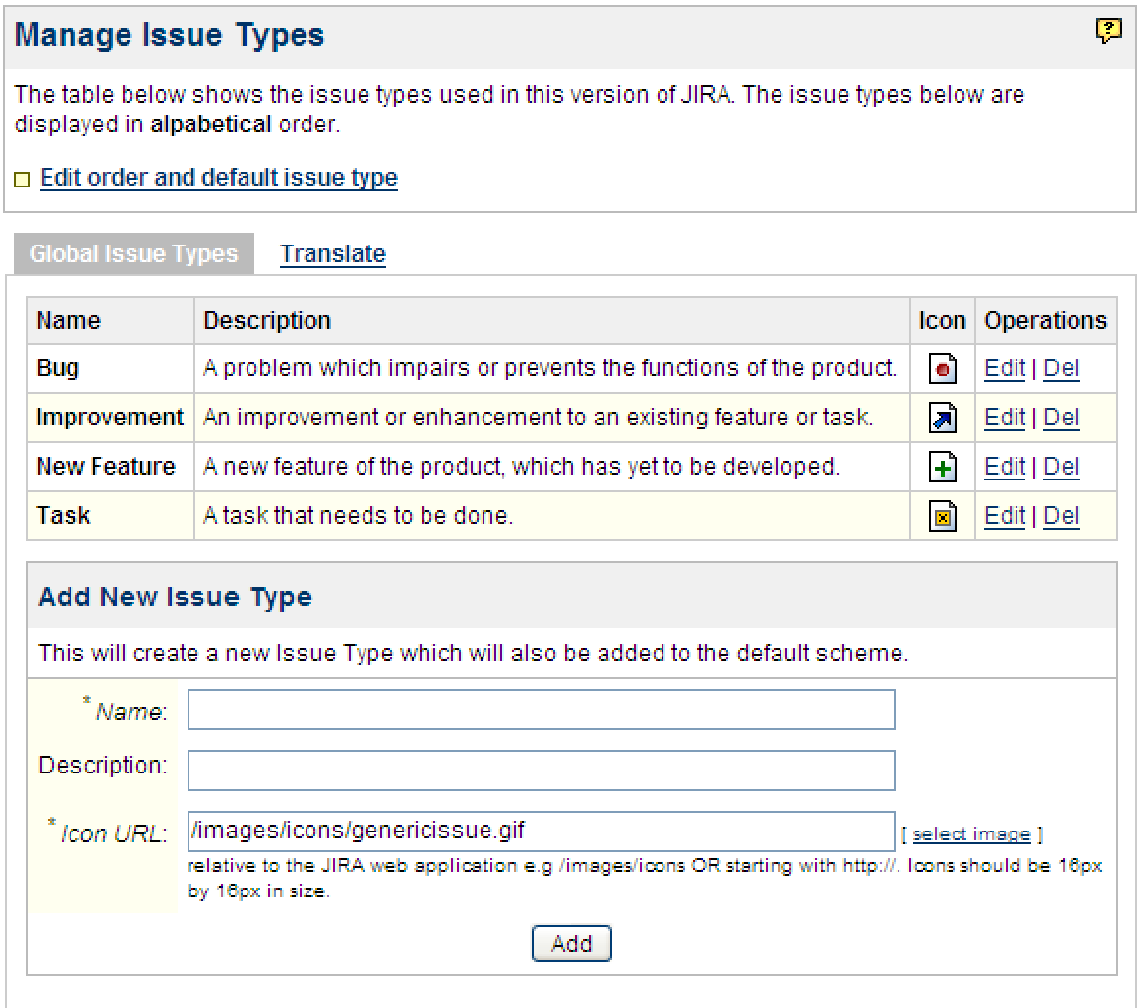
- Creating an Issue Type
- Deleting an Issue Type
- Editing an Issue Type

Note that you can also:

- control the set of available Issue Types for each project — see Associating Issue Types with Projects.
- control the display order of available Issue Types and the default Issue Type for each project — see Associating Issue Types with Projects. *Reordering* issue types changes the order in which they are displayed to the user who is creating an issue; and the *default* issue type is the one that is displayed in the selection-box (see Creating an Issue).
- associate particular Issue Types with particular Fields, Screens and Workflow — for details see 'Associating Field Behaviour with Issue Types', 'Associating Screens with Issue Types' and 'Activating Workflow', respectively. (Also see the diagram of how these interrelate.)

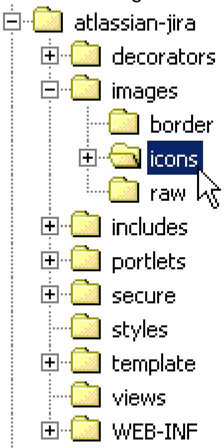
Creating an Issue Type

1. Log in as a user with the '**JIRA Administrators**' global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard:
3. On the panel on the left, under the title 'Issue Settings', click on the link labelled '**Issue Types**'.
4. This will bring up the 'Manage Issue Types' page. The page lists all issue types, along with a form underneath to add new issue types.



Note that you must Enable Sub-tasks to create a sub-task issue type.

5. To add a new Issue Type, fill in the Add New Issue Type form. For the '**Name**', enter a short phrase that best describes your new Issue Type. For the '**Description**', enter a sentence or two to describe when this Issue Type should be used. For the '**Icon URL**' you need to supply the path of a 16-by-16-pixel image that has been placed somewhere inside JIRA's opened .war. We suggest you place it in /images/icons:



Once you create your new Issue Type, it will be automatically added to the **Default Issue Type Scheme**. For more information, see *Managing Issue Type Schemes*.

Deleting an Issue Type

Before you begin:
So that JIRA can prompt you to choose a new Issue Type for any issues that are currently using the Issue Type which you are deleting, please ensure that the Issue Type which you are deleting is associated with:

- the same Workflow in all Workflow Schemes that are associated with one or more projects.
- the same Field Configuration in all Field Configuration Schemes that are associated with one or more projects.
- the same Screen Scheme in all Issue Type Screen Schemes that are associated with one or more projects.

Alternatively, you can simply search for all issues that currently use the Issue Type which you are deleting, and do a Bulk Move to change them to a different Issue Type.

To delete an Issue Type,

1. Log in as a user with the '**JIRA Administrators**' global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard:
3. On the panel on the left, under the title 'Issue Settings', click on the link labelled '**Issue Types**'.
4. This will bring up the 'Manage Issue Types' page (as shown above). Click the '**Del**' link at the right of the issue type that you wish to delete.

Editing an Issue Type

To change the Name, Description or Icon for an Issue Type:

1. Log in as a user with the '**JIRA Administrators**' global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard:
3. On the panel on the left, under the title 'Issue Settings', click on the link labelled '**Issue Types**'.
4. This will bring up the 'Manage Issue Types' page (as shown above). Click the '**Edit**' link at the right of the issue type that you wish to edit.

Note: To reorder an Issue Type, or set it as a default, see Associating Issue Types with Projects. (*Reordering* issue types changes the order in which they are displayed to the user who is creating an issue; and the *default* issue type is the one that is displayed in the selection-box --- see Creating an Issue.)

Associating Issue Types with Projects

On this page:

- What is an 'Issue Type Scheme'?
- Managing Issue Type Schemes
  - Creating a new scheme
  - Editing a scheme
  - Associating a scheme with projects
- Managing Schemes for a Project
- Issue Type Migration Wizard

What is an 'Issue Type Scheme'?

An **Issue Type Scheme** is a sub-set of issue types. An Issue Type Scheme allows you to:

- restrict the set of available issue types for each project.
- control the display order of available Issue Types and the default Issue Type for each project (ie. the Issue Type that is displayed in the selection-box when a user creates an issue).

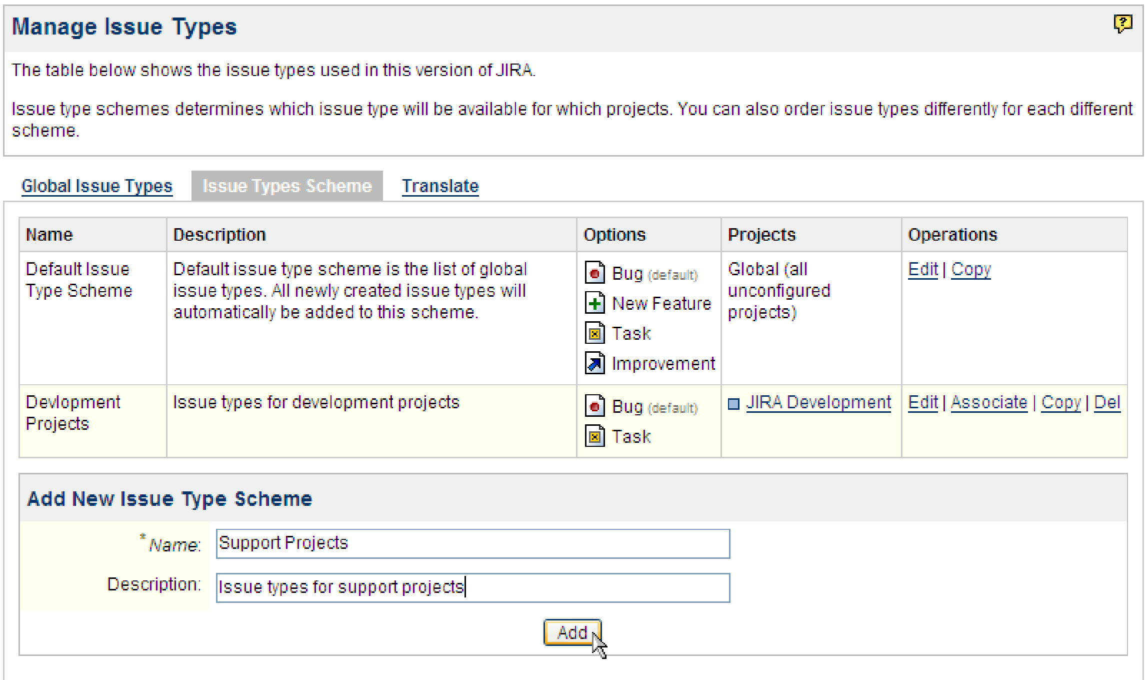
An Issue Type Scheme can be shared across multiple projects, so that a group of similar projects can share the same issue type settings.

For example, in your company all projects may be one of two types, a development project or a support project. You could then create one scheme called *Task* with issue types *Bug* and *Development* and another called *Support Issue Types,* with *Development Query* and *Support Request.* You can then associate each scheme with the appropriate project(s), giving your users a different set of issue types depending on which project they decide to create issues in. Your future maintenance workload is minimised, because any change you make to a scheme is made across all projects that are associated with the scheme. In this example, adding a new issue type to all support projects only requires the simple step of adding the issue type to the *Support Issue Types* scheme.

Managing Issue Type Schemes

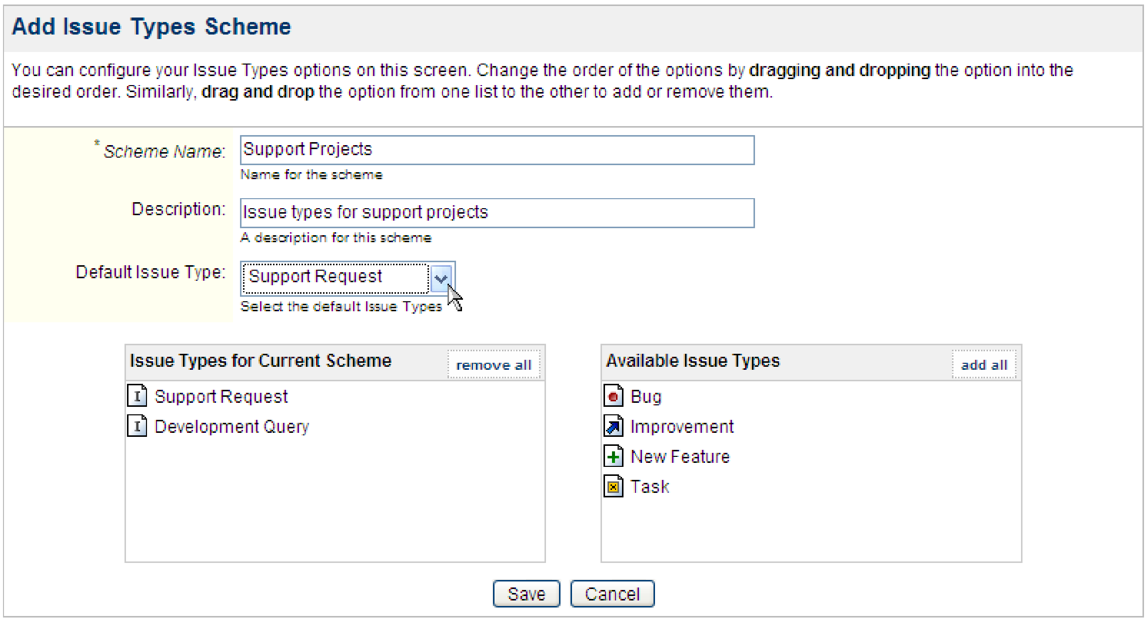
1. Log in as a user with the '**JIRA Administrators**' global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard:
3. On the panel on the left, under the title 'Issue Settings', click on the link labelled '**Issue Types**'.
4. This will bring up the 'Manage Issue Types' page. Click the **'Issue Type Schemes'** tab. This will display all existing Issue Type Schemes, their related issue types and the associated projects.

The **'Default Issue Type Scheme'** contains all the issue types that exist in your JIRA system. This scheme is associated with all newly created projects by default. If some of your issue types are not relevant to all of your projects, create one or more new Issue Type Schemes (e.g. 'Development Projects' in this screenshot) as described below, and associate them with the appropriate projects instead of using the **Default Issue Type Scheme.**

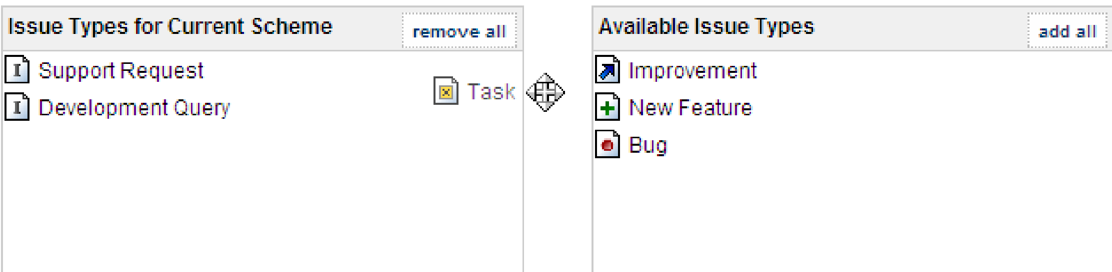


Creating a new scheme

1. To create a new scheme, enter the name and description for the new scheme. Ensure that the name is meaningful as this will be visible to other administrators and will allow them to better reuse the scheme.
2. Click the '**Add**' button and the screen below will be displayed.



3. Set the default for the new scheme from the select list. Add a new issue type to your scheme by dragging and dropping the issue type from the right hand list to the left. You can similarly reorder the issue types in the desired order by dragging and dropping them into the right positions.



4. If you need an issue type that does not currently exist, you can add this easily in using the add issue type form at the bottom of the

page. This will add the issue type to the system and also add it to the scheme you're editing.
5. Once you've finished with your scheme. Click the '**Save' button to persist your changes. Note that unless you click on '*Save**', no scheme will be created.

Editing a scheme

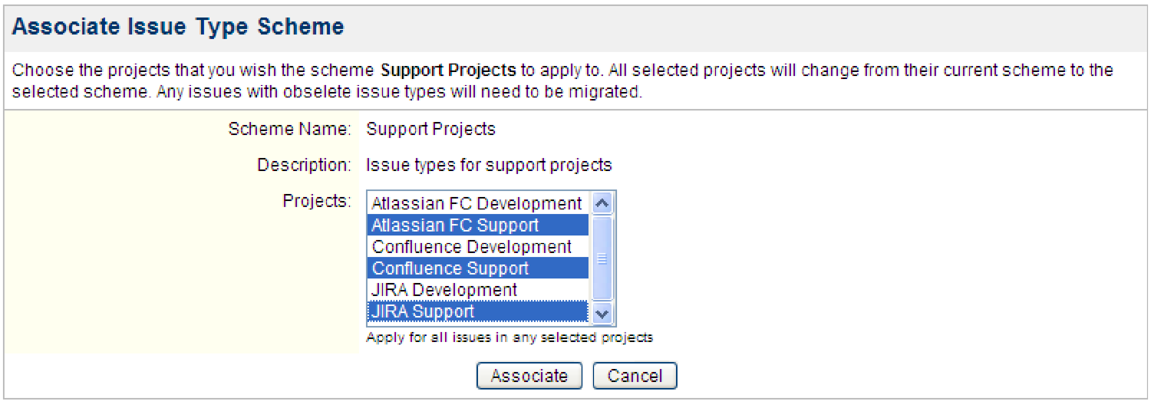
The process of editing a scheme is identical to the creation process. You can set defaults¹, reorder², add and remove issue types as before. However, if you're removing issue types from the scheme and there are issues associated with that issue type, you will be required to use the Issue Type Migration Wizard which will move your issues from the obsolete issue type to a valid one. Note that if you cancel out of this process at any time, your changes will not be committed. See below for more information about the migration wizard.

[1] [2] *Reordering* issue types changes the order in which they are displayed to the user who is creating an issue; and the *default* issue type is the one that is displayed in the selection-box (see Creating an Issue).

Associating a scheme with projects

You can restrict the issue types available by associating your Issue Type Scheme with various projects. Click the '**Associate**' link and simply choose the projects that you wish your scheme to apply to. All selected projects will change from their current scheme to the selected scheme.

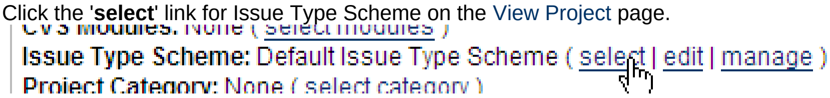
If the new scheme does not have an issue type that was present in the old scheme, you will be asked to use the Issue Type Migration Wizard to migrate the issues.



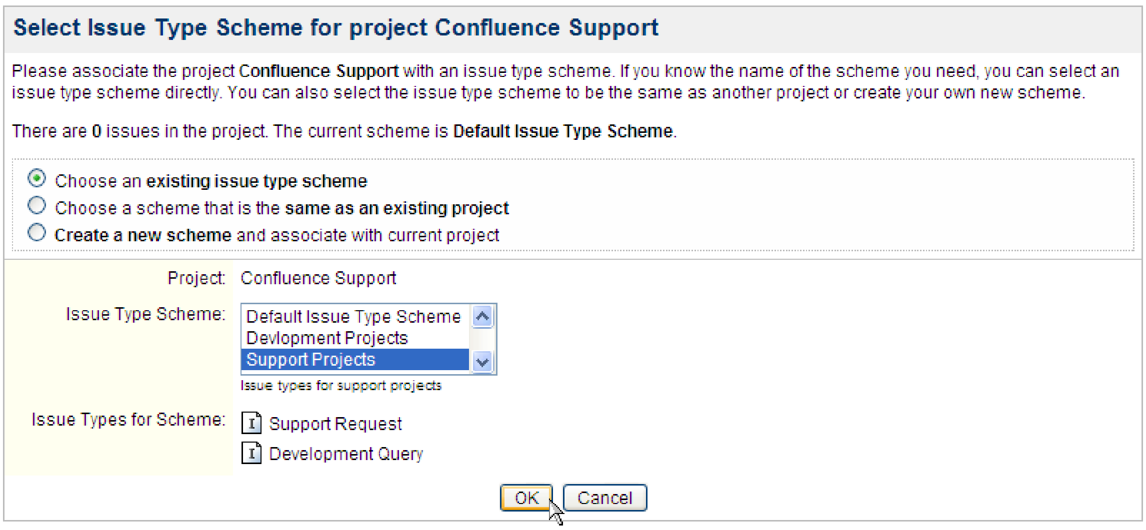
Managing Schemes for a Project

When updating a project you may often want to quickly restrict its issue types. However, the available Issue Type Schemes may not always be applicable, or you might not know which scheme to choose. The *Select Issue Type Scheme* screen makes this process simpler.

1. Click the '**select**' link for Issue Type Scheme on the View Project page.

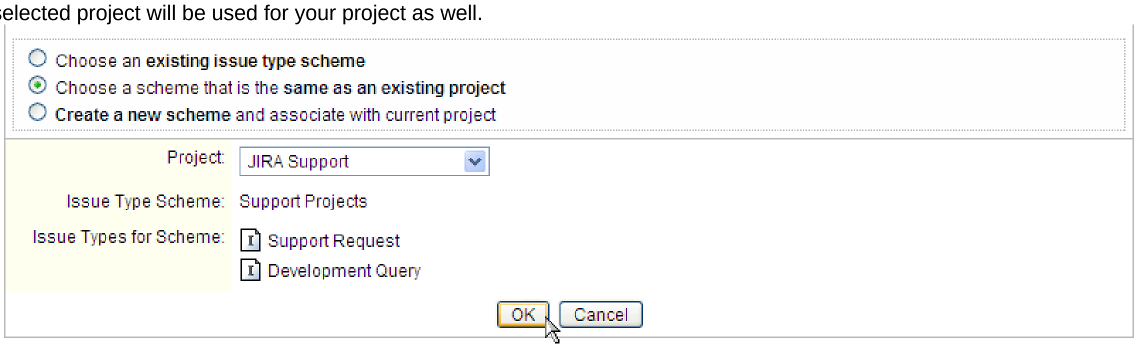


2. This will bring you the screen below.

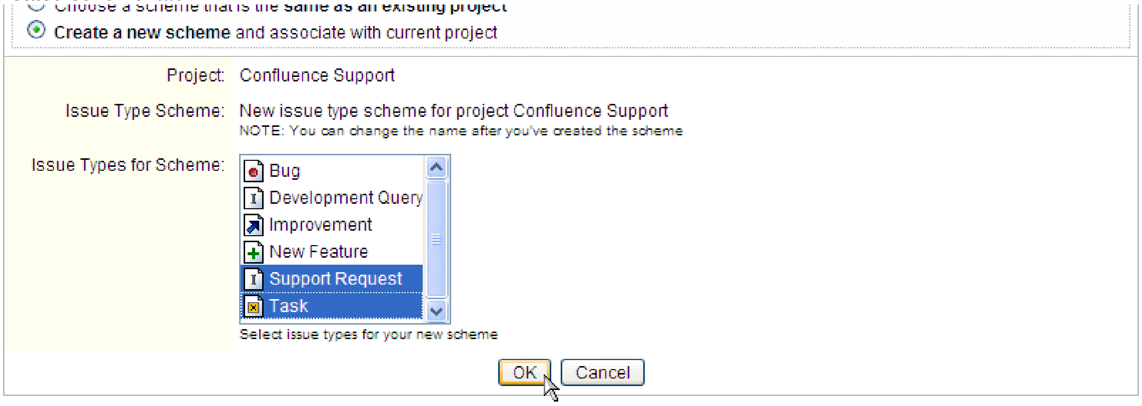


3. There are three ways you can select your issue type scheme. Select the radio button that is most relevant.
   a. *Choose an existing issue type scheme* — If you know the name of you scheme (e.g. Support Issue Type Scheme), you can immediately choose it from the list. You will see a preview of issue types that would be available for your project as well as the description of the scheme.
   b. *Choose a scheme that is the same as an existing project* — If you do not know the name of the scheme you would like to use, but you do know the name of the project whose set of issue types you wish to use for the project you are editing,

please select this option. You will be prompted to select a project and the scheme that is currently associated with the selected project will be used for your project as well.



c. *Create a new scheme and associate with current project* — Select this option if you can't find any existing scheme that fits your needs and would like to quickly create a new scheme. Simply select the relevant issue types for your project and a new scheme will be created with the default name and order. You can edit the name, default value and order of the newly created scheme later.



4. If after you make your changes there are any issues in the selected project that will have obsolete issue types, they will have to be migrated with the JIRADOC:Issue Type Migration Wizard.

Issue Type Migration Wizard

This Issue Type Migration Wizard allows you to migrate issues from an obsolete issue type to a valid issue type. The wizard will be triggered whenever an action (e.g. editing a project's issue type scheme) results in an issue type becoming obsolete (not available in the scheme).

The wizard bears some resemblance to the Bulk Move function except for that you can't change the project of the issues. The major steps are:

1. Overview — provides a summary of the issues that will require migration
2. Choose Issue Type
3. Set new status
4. Set field values
5. Confirmation

Steps 2 to 4 will be repeated for each issue type that requires migration. After you have migrated all the issues you'll see a summary of changes that will occur. If you click the '**Confirm**' button, the wizard will migrate your issues to the new issue types and then complete your action.

Please refer to the Bulk Move documentation for more information on status changes and setting of fields values.

Defining 'Priority' Field Values

An issue's *priority* is its importance in relation to other issues.

JIRA ships with a set of default priorities. You can modify these or add your own as follows.

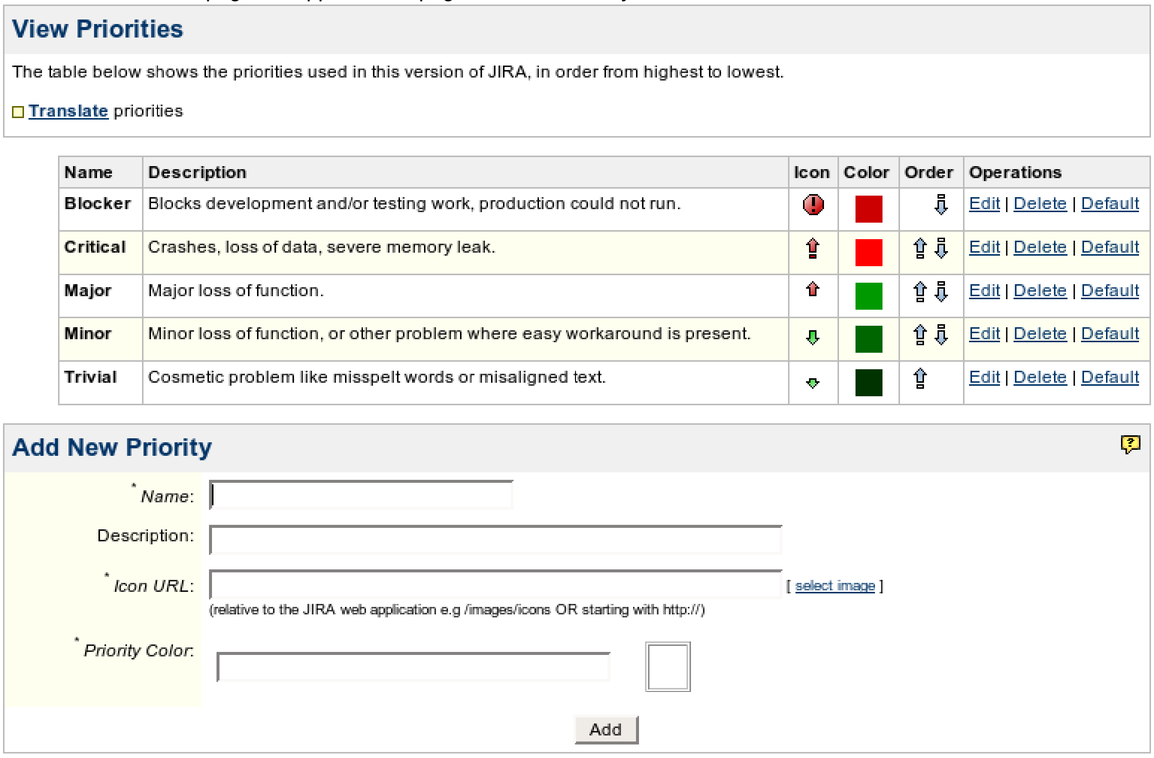
On this page:

- Defining a new priority
- Editing a priority
- Re-ordering priorities
- Translating priorities
- Deleting a priority

Defining a new priority

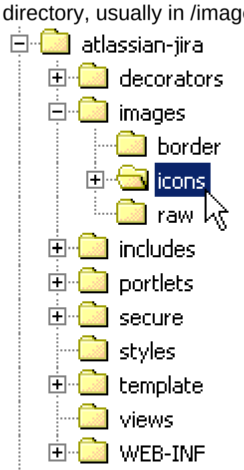
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.

3. In the left-hand panel, under the title **'Issue Settings',** click the **'Priorities'** link.
4. The **'View Priorities'** page will appear. This page lists the currently-defined Priorities, below which is the **'Add New Priority'** form.



Name	Description	Icon	Color	Order	Operations
Blocker	Blocks development and/or testing work, production could not run.				Edit | Delete | Default
Critical	Crashes, loss of data, severe memory leak.				Edit | Delete | Default
Major	Major loss of function.				Edit | Delete | Default
Minor	Minor loss of function, or other problem where easy workaround is present.				Edit | Delete | Default
Trivial	Cosmetic problem like misspelt words or misaligned text.				Edit | Delete | Default

5. In the **'Name'** field, type a word or two to describe your new priority. (The Name will appear in the drop-down field when a user creates or edits an issue).
6. In the **'Description'** field (optional), type a sentence or two to describe when this priority should be used.
7. In the **'Icon URL'** field, specify an image file to represent this priority. The dimensions of the image must be 16-pixels by 16-pixels. You can either type a URL, or click the **'Select image'** link to browse to a file location somewhere inside your JIRA installation directory, usually in /images/icons:



8. In the **'Priority Color'** field, specify a colour to represent this priority. You can either type the HTML colour code, or click the box at the right of the field to select from a colour chart.
9. Click the **'Add'** button.

Editing a priority

1. Go to the **'View Priorities'** page as described in steps 1-4 of **'Adding a priority'** (above).
2. Click the **'Edit'** link corresponding to the priority you wish to edit.
3. Update the fields as described under **'Defining a new priority'** (above), then click the **'Update'** button.

Re-ordering priorities

Re-ordering priorities changes the order in which they appear in the drop-down list when a user creates or edits an issue.

1. Go to the **'View Priorities'** page as described in steps 1-4 of **'Adding a priority'** (above).
2. To re-order the priorities, click the arrows in the **'Order'** column:
   - Click the up-arrow to move a priority higher up in the list.
   - Click the down-arrow to move a priority lower down in the list.

Translating priorities

To translate your priorities into another language, please see Translating Resolution/Priority/Status/Type.

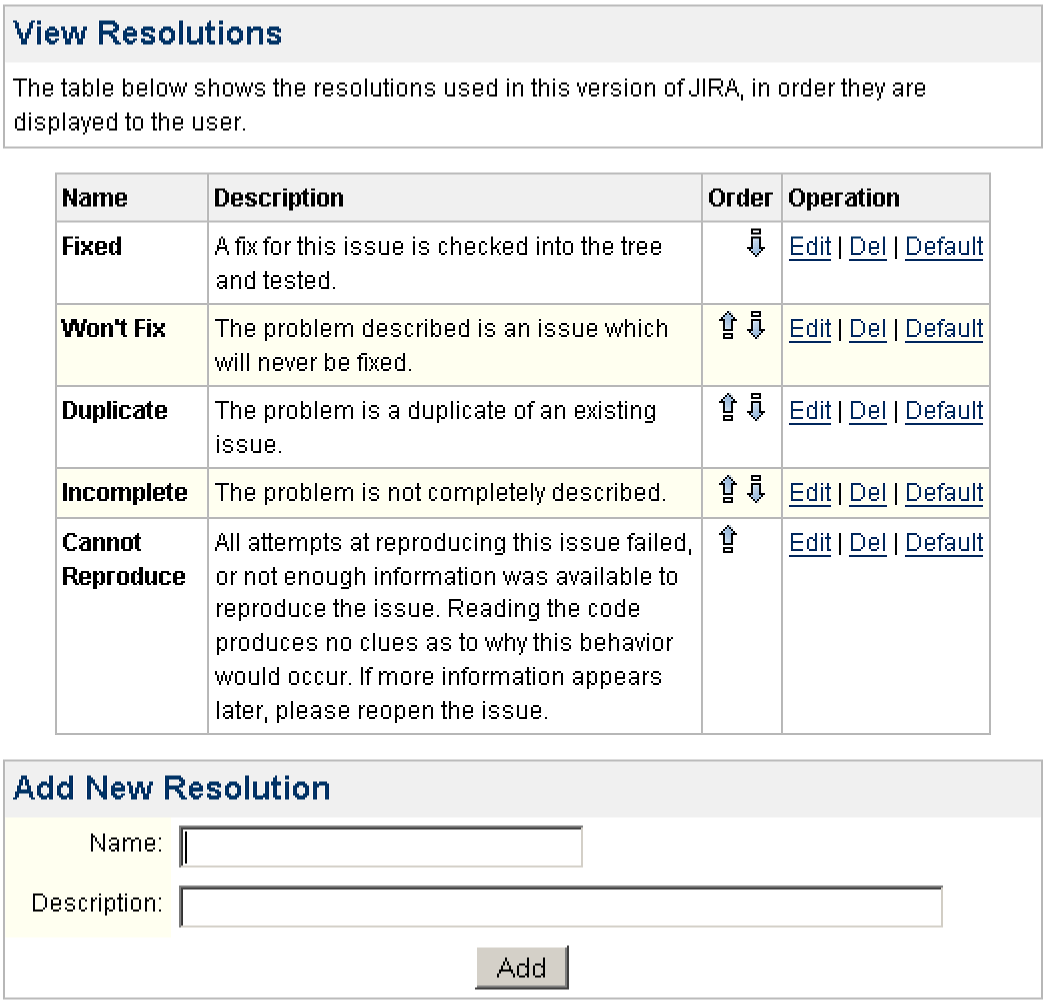
Deleting a priority

1. Go to the **'View Priorities'** page as described in steps 1-4 of **'Adding a priority'** (above).
2. Click the **'Del'** link corresponding to the priority you wish to delete.

Defining 'Resolution' Field Values

Resolutions are the ways in which an issue can be closed. JIRA ships with a set of default resolutions, but you can add your own. To do so, follow the following steps.

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title '**Issue Settings**', click the link labelled '**Resolutions**'.
4. This will bring up the 'View Resolutions' page. The page lists the standard resolutions, along with a form underneath to add new resolutions.



Name	Description	Order	Operation
Fixed	A fix for this issue is checked into the tree and tested.	⇩	Edit | Del | Default
Won't Fix	The problem described is an issue which will never be fixed.	⇧ ⇩	Edit | Del | Default
Duplicate	The problem is a duplicate of an existing issue.	⇧ ⇩	Edit | Del | Default
Incomplete	The problem is not completely described.	⇧ ⇩	Edit | Del | Default
Cannot Reproduce	All attempts at reproducing this issue failed, or not enough information was available to reproduce the issue. Reading the code produces no clues as to why this behavior would occur. If more information appears later, please reopen the issue.	⇧	Edit | Del | Default

5. To add a new resolution, fill in the 'Add New Resolution' form. For the name put a short phrase that best describes your new resolution. For the description, put a sentence or two to describe when this resolution should be used. Click the '**Add**' button to add your new resolution.
6. The View Resolutions table can be used to edit, delete, set as default, and re-order the resolutions as they are displayed to the user who is resolving an issue.

Defining 'Status' Field Values

Statuses are used to represent the position of the issue in its workflow. A workflow represents a business process, represented as a set of stages that an issue goes through to reach a final stage (or one of the final stages). Each stage in the workflow (called a *workflow step)* is linked to an *issue status,* and an issue status can be linked to only one workflow step in a given workflow.

JIRA ships with a set of default statuses that are used by the default workflow. You can add your own statuses and customise the workflow, as well as change the names, descriptions and icons of existing Statuses.

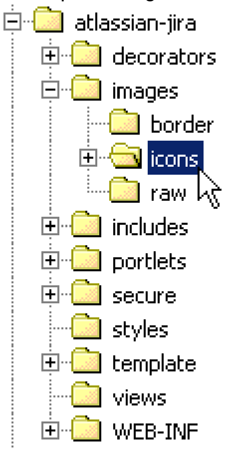
Defining a New Status

1. Log in as a user with the **'JIRA Administrators'** global permission.

2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Open the left-hand sub-menu titled "Issue Settings" if it is not open already and click on the link labelled "Statuses".
4. This will bring up the *View Statuses* page. The page lists the existing Statuses, along with a form underneath to add a new Status.

Status Details	Mode	Workflows	Operations
Open The issue is open and ready for the assignee to start work on it.	Active	jira Copy of jira	Edit
In Progress This issue is being actively worked on at the moment by the assignee.	Active	jira Copy of jira	Edit
Reopened This issue was once resolved, but the resolution was deemed incorrect. From here issues are either marked assigned or resolved.	Active	jira Copy of jira	Edit
Resolved A resolution has been taken, and it is awaiting verification by reporter. From here issues are either reopened, or are closed.	Active	jira Copy of jira	Edit
Closed The issue is considered finished, the resolution is correct. Issues which are closed can be reopened.	Active	jira Copy of jira	Edit

5. To add a new Status, fill in the Add New Status form. For the name put a short phrase that best describes your new Status. For the description, put a sentence or two to describe what stage this Status represents. For the Icon URL you need to supply the path of a 16x16-pixel image that has been placed somewhere inside JIRA's opened `.WAR`. We suggest you place it in `/images/icons`:



JIRA ships with a number of images that can be used as status icons. These images are located in the `/images/icons directory` inside the JIRA .war and include:
- status_assigned.gif
- status_closed.gif
- status_document.gif
- status_down.gif
- status_email.gif
- status_generic.gif
- status_information.gif
- status_inprogress.gif
- status_invisible.gif
- status_needinfo.gif
- status_open.gif
- status_reopened.gif
- status_resolved.gif
- status_trash.gif
- status_unassigned.gif
- status_up.gif
- status_visible.gif

Deleting a Status

The 'View Statuses' table can be used to edit and delete Statuses. Please note that only '**Inactive**' statuses (i.e. statuses that are not used in any workflow) can be deleted. For '**Inactive**' statuses, a '**Delete**' link will appear next to the '**Edit**' link.

Translating Resolutions, Priorities, Statuses and Issue Types

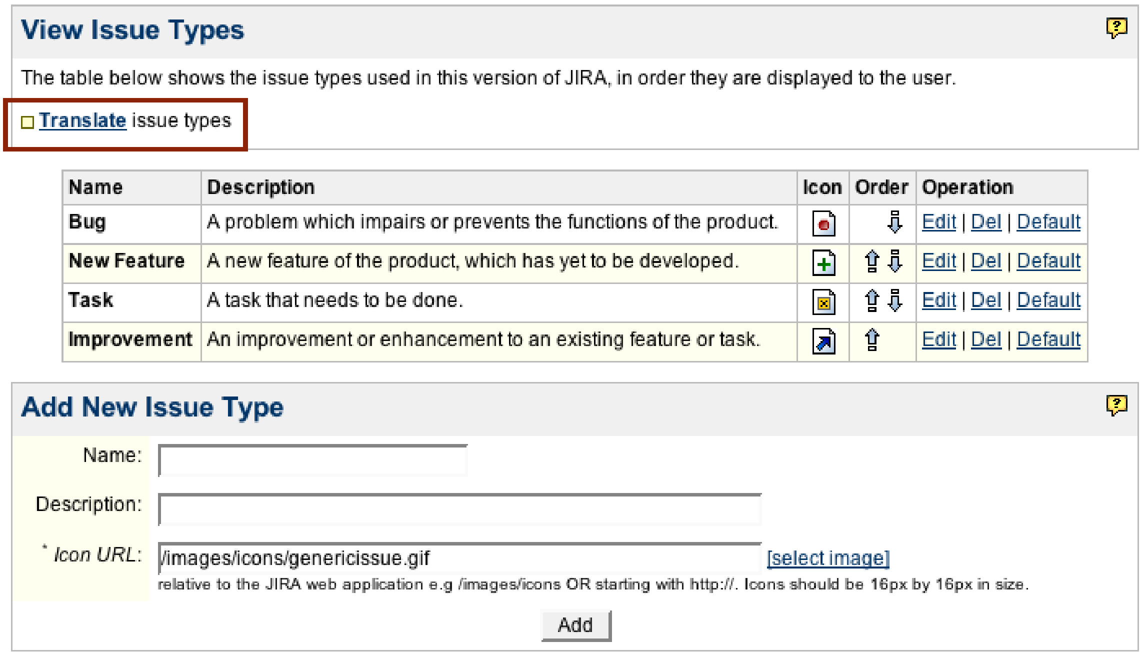
Further extending JIRA as an internationalisable issue manager, it is possible to specify a translated name and description for each issue constant — i.e all Issue Type, Status, Resolution and Priority fields.

This functionality allows the administrator to specify an issue constant translation set for each available language - providing each user with a more complete translation in their own chosen language. The translated issue constant names and descriptions appear throughout JIRA; in reports, portlets and all issue views.

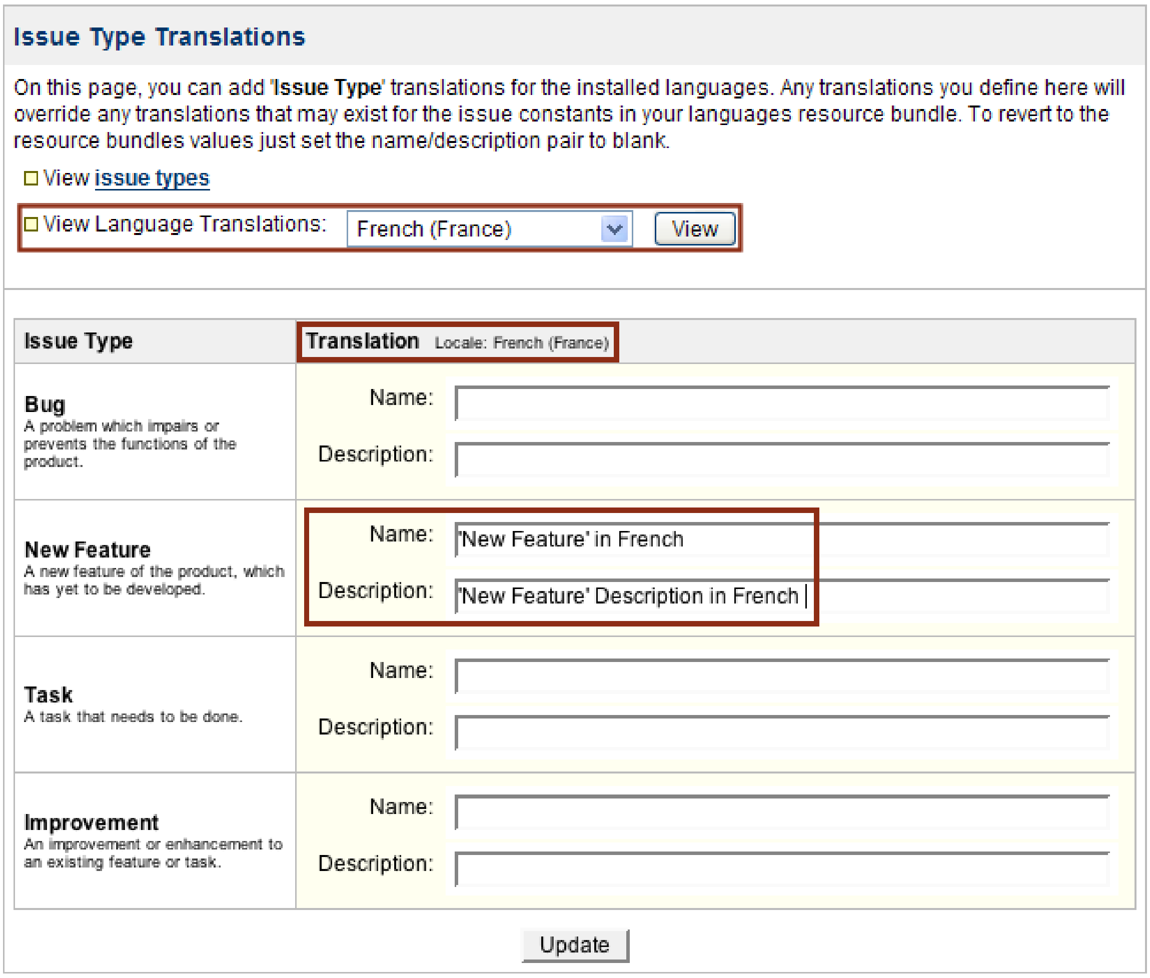
Issue Constant Translation

Each issue constant can be configured to have a translation set for each available language. The default issue constant name and description are displayed if no translation has been configured.

1. The issue constant translation operation is accessed through the **Translate** link located on each issue constant management screen.



2. The issue constant translation screen displays the translation set for the currently selected language. In order to view/update a translation set for a specific language, select the required language from the list at the top of the screen and click the **View** button.



3. The currently selected language is displayed above the translation set table.
4. A translated name and description set can be specified for each type of issue constant. Once all translations have been entered, the translation set can be saved by clicking the **Update** button at the bottom of the translation table.

5. The process can be repeated for the all types of issue constants - i.e. Issue Type, Status, Resolution and Priority fields.
6. The translated issue constant name and description will be displayed throughout JIRA; in reports, portlets and all issue views.

The default issue constant name and description are displayed if a translation has not been specified.

Adding a Custom Field

On this page:

- Custom Fields Overview
    - Custom Field Types
    - Search Templates
    - Custom Field Context
- Adding a Custom Field
- Next Steps
- Additional Resources

Custom Fields Overview

To help you tailor JIRA to your organisation's needs, JIRA enables you to add custom fields in addition to the built-in fields. For example, if you needed to capture information about the database that each issue relates to, you could add a custom field called 'Database'.

You can choose the most suitable custom field type (see below) for your purposes. For example, you could choose to create this field as a Free Text Field, in which users can type whatever they wish, or as a Select List, which will force users to select from a list of pre-defined options.

Once you have created a new custom field (see below), you will need to add it to one or more screens so that it is available to users. For more information about how field and screens interrelate, please see Configuring Fields and Screens.

Custom fields are always optional fields. This means that you can create a new custom field without requiring existing issues to be changed. The existing issues will contain no value for the new custom field, even if a default value is defined.

Custom Field Types

JIRA ships with over 20 custom field types and you can find many more in the Plugin Exchange (e.g. the JIRA Toolkit). A sample of the types are listed as follows:

Custom Field Type	Description
Cascading Select	Multiple select lists where the options for the second select list dynamically updates based on the value of the first
Date Picker	Input field allowing input with a date picker and enforcing valid dates
Date Time	A custom field that stores dates with a time component.
Free Text Field (unlimited text)	Multiple line text-area enabling entry of longer text strings
Group Picker	Choose a user group using a popup picker window.
Labels	Input field allowing labels to be added an issue. E.g. If you are using GreenHopper, the 'Epics' feature is implemented via a 'Labels' custom field.
Multi Checkboxes	Checkboxes allowing multiple values to be selected
Multi Group Picker	Choose one or more user groups using a popup picker window.
Multi Select	Select list permitting multiple values to be selected
Multi User Picker	Choose one or more users from the user base via a popup picker window.
Number Field	Input field storing and validating numeric (floating point) values
Project Picker	Select list displaying the projects viewable by the user in the system

Radio Buttons	Radio buttons ensuring only one value can be selected
Select List	Single select list with a configurable list of options
Single Version Picker	Choose a single version from available versions in the project.
Text Field	Basic single line input field to allow simple text input of less than 255 characters
URL Field	Input field that validates a valid URL
User Picker	Choose a user from the user base via a popup picker window.
Version Picker	Choose one or more versions from available versions in the project.

To build your own custom field types, see the tutorial at the JIRA Development Hub.

Search Templates

Search Templates are responsible for indexing a custom field as well as making it searchable through the Issue Navigator (note that custom fields are not searchable via QuickSearch). Each of the default custom field types has a related preconfigured search template.

When you create a new custom field (see below) you will need to specify its Search Template.

Custom Field Context

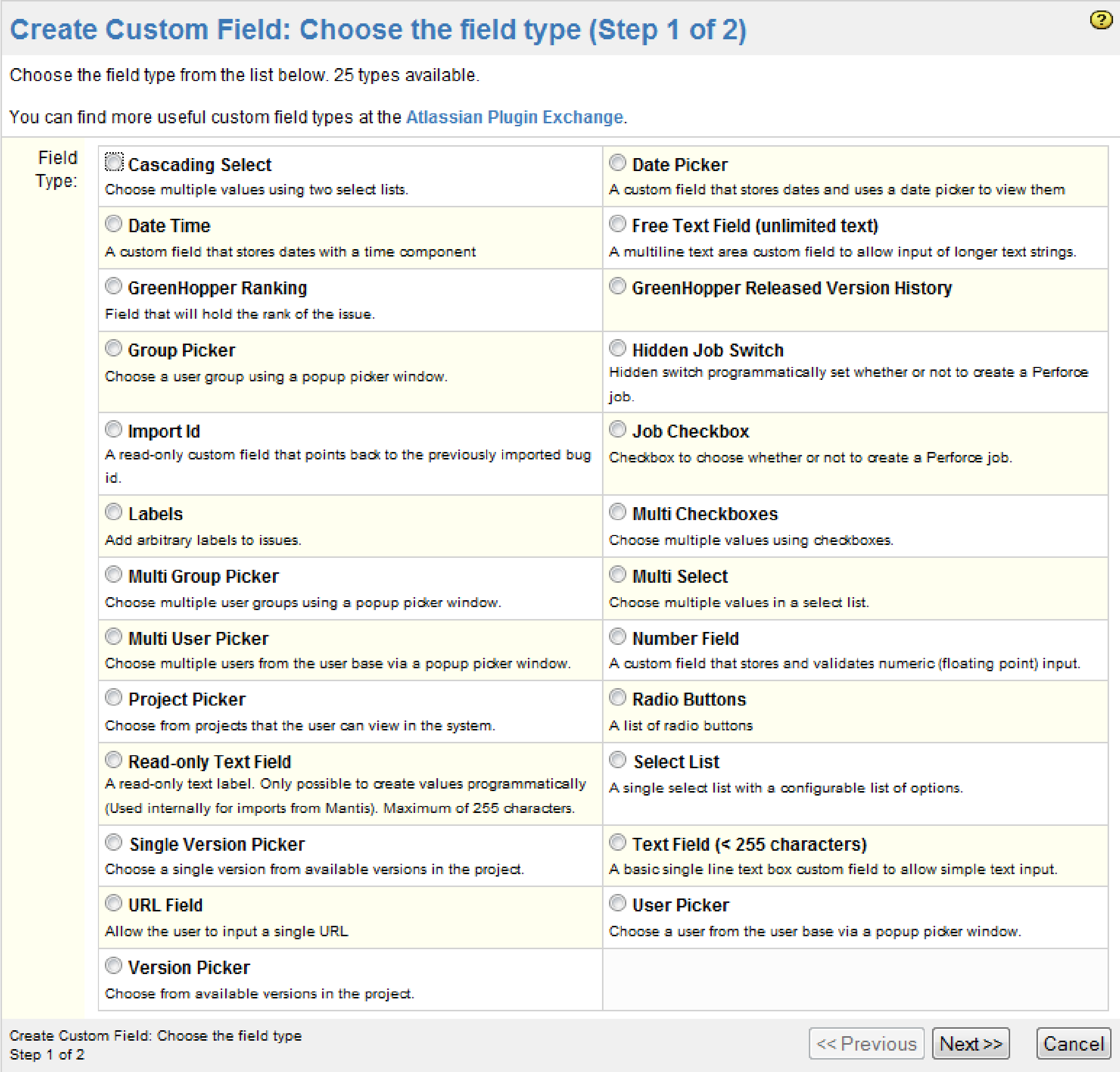
The custom field ***context*** allows your custom field to be configured differently for numerous different combinations of issue types and projects. For example, your custom field could have different default values for different projects (and/or issue types).

When you create a new custom field (see below) you will need to either select the applicable issue type(s) and project(s), or define the custom field to be global. You can change this later if required — see Configuring a Custom Field.

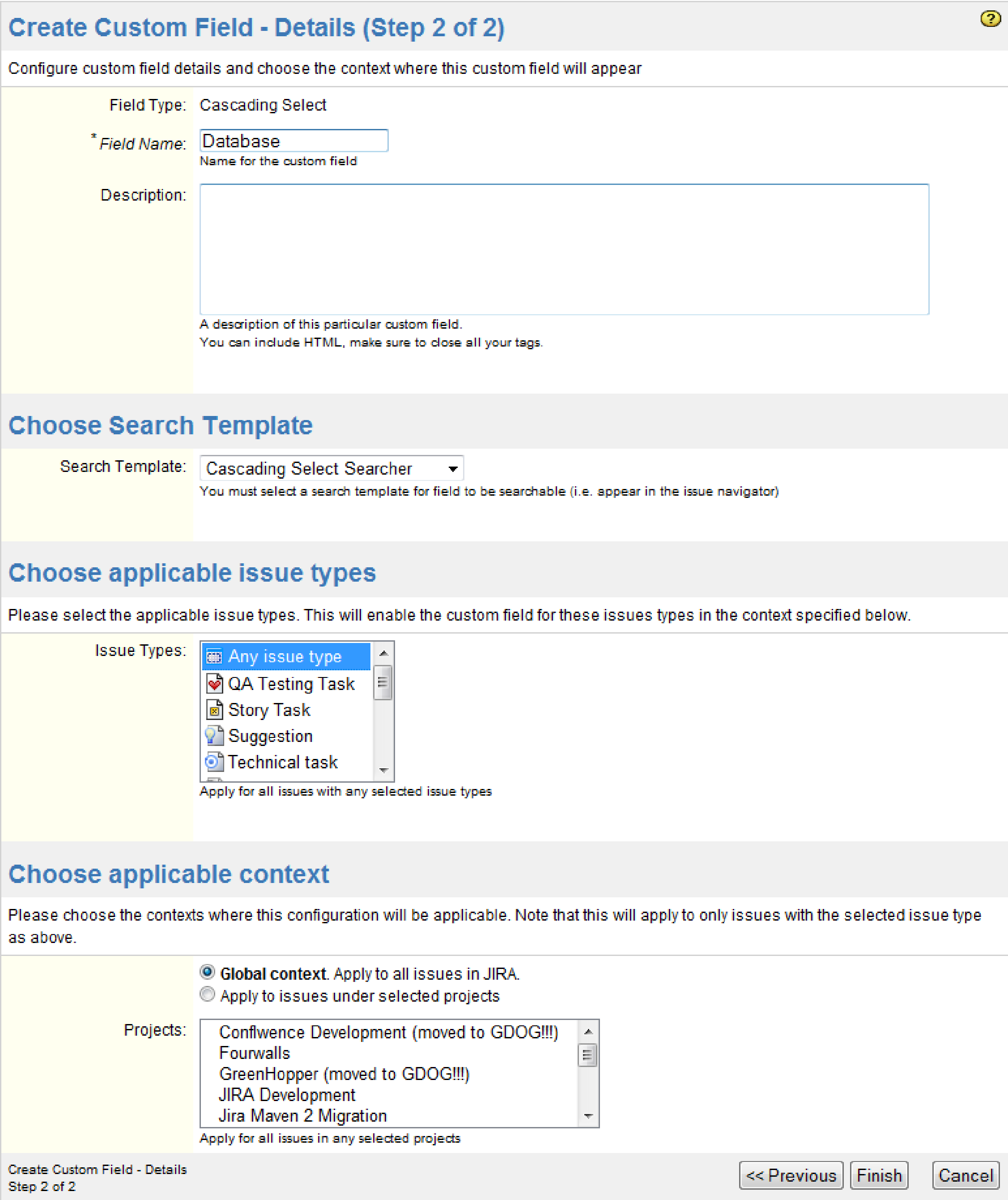
Adding a Custom Field

To create a new field, associate it with a context, and add it to a screen:

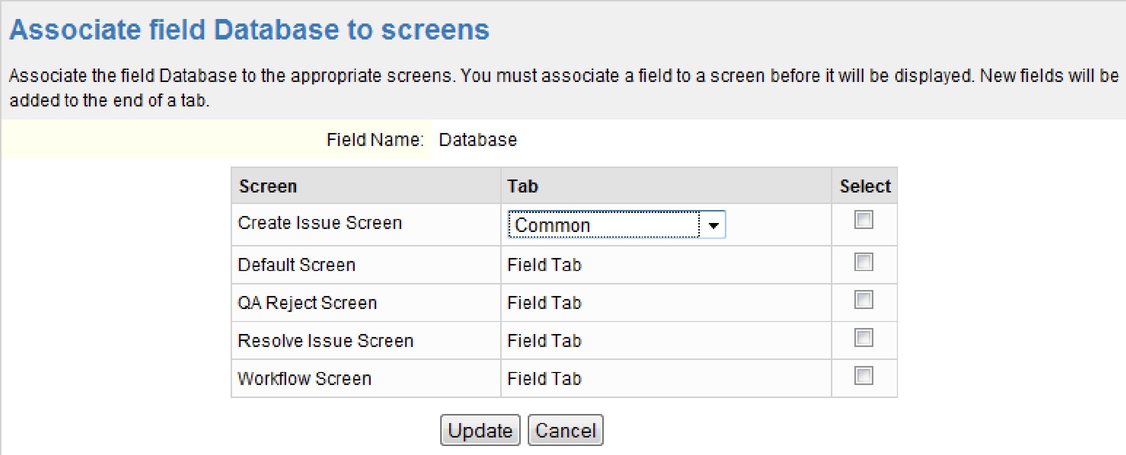
1. Log in as a user with the '**JIRA Administrators** ' global permission .
2. Bring up the administration page by clicking either the ' **Administration** ' link on the top bar or the title of the Administration box on the dashboard:
3. On the menu bar on the left, under '**Issue Fields**', click the '**Custom Fields**' link, then click the '**Add Custom Field**' link on the presented page. The '**Add Custom Field - Step 1**' screen will display:



4. Select the appropriate '**Field Type**' field the list.
5. Click the '**Next**' button. The '**Add Custom Field - Step 2**' screen will display:



6. Fill in the '**Field Name**' and '**Field Description**'. The Field Name will appear as the custom field's title in both entering and retrieving information on issues. The Field Description is displayed beneath the data entry field when entering new issues and editing existing issues, but not when browsing issues.
7. Select an appropriate '**Search Template**' (see above). Pre-configured search templates are available for each shipped custom field type. A description of each search template will appear next to the select list when you select one.
8. Select one or any number of '**Issue Types**' to which this custom field will be available. Alternatively, select '**Any issue type**' to make the custom field available to all Issue Types. You can change this in the future if you need to.
9. Select the applicable context, that is, the '**Project(s)**' to which the custom field will be available. Alternatively, select '**Global context**' to make the custom field available to all projects.
   - If issue types were chosen, the custom field will only appear for those issue types for the selected project(s).
10. Click the '**Finish**' button.
11. This will bring you to the screen association page:



12. Select a screen, or screen tab, on which to display your newly created custom field. You must associate a field with a screen before it will be displayed. New fields will be added to the end of a tab.
13. Click the '**Update**' button. You will return you to the View Custom Fields page, which displays a summary of all custom fields in your JIRA system. You can edit, delete or configure custom fields here. This page is also directly accessible from the menu bar to the left of all Administration pages. For details please see Configuring a Custom Field.

Next Steps

Once you have created your new custom field, you can configure its:

- default value
- options (for custom fields of type Select List, Multi Select or Cascading Select)
- context (see above)

For details, see Configuring a Custom Field.

Additional Resources

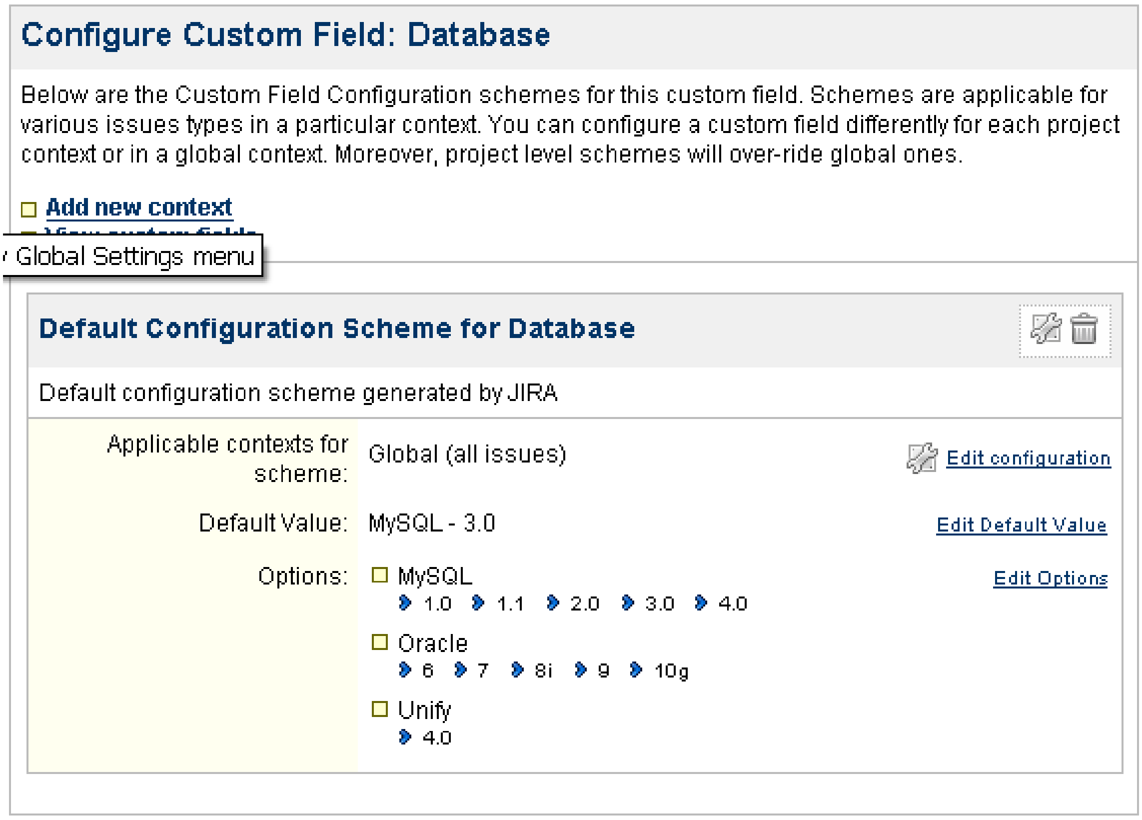
- Adding a custom field tutorial video — Watch this short tutorial video to see how to add and configure a new custom field. Please note the JIRA version and JIRA edition of the tutorial video before watching.

Configuring a Custom Field

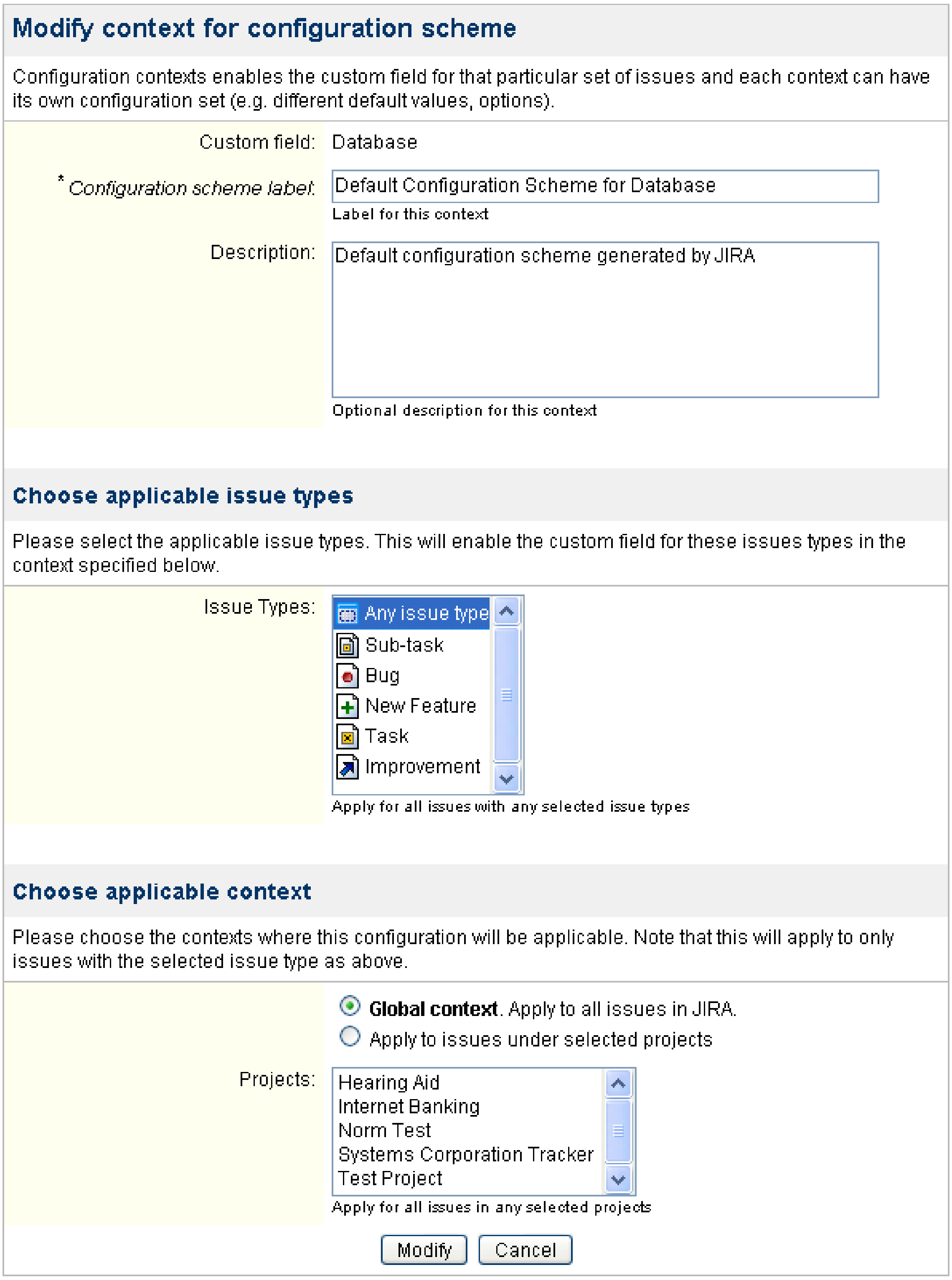
On this page, we show you how you can configure your custom field after you've created them.

Configuring Custom Fields

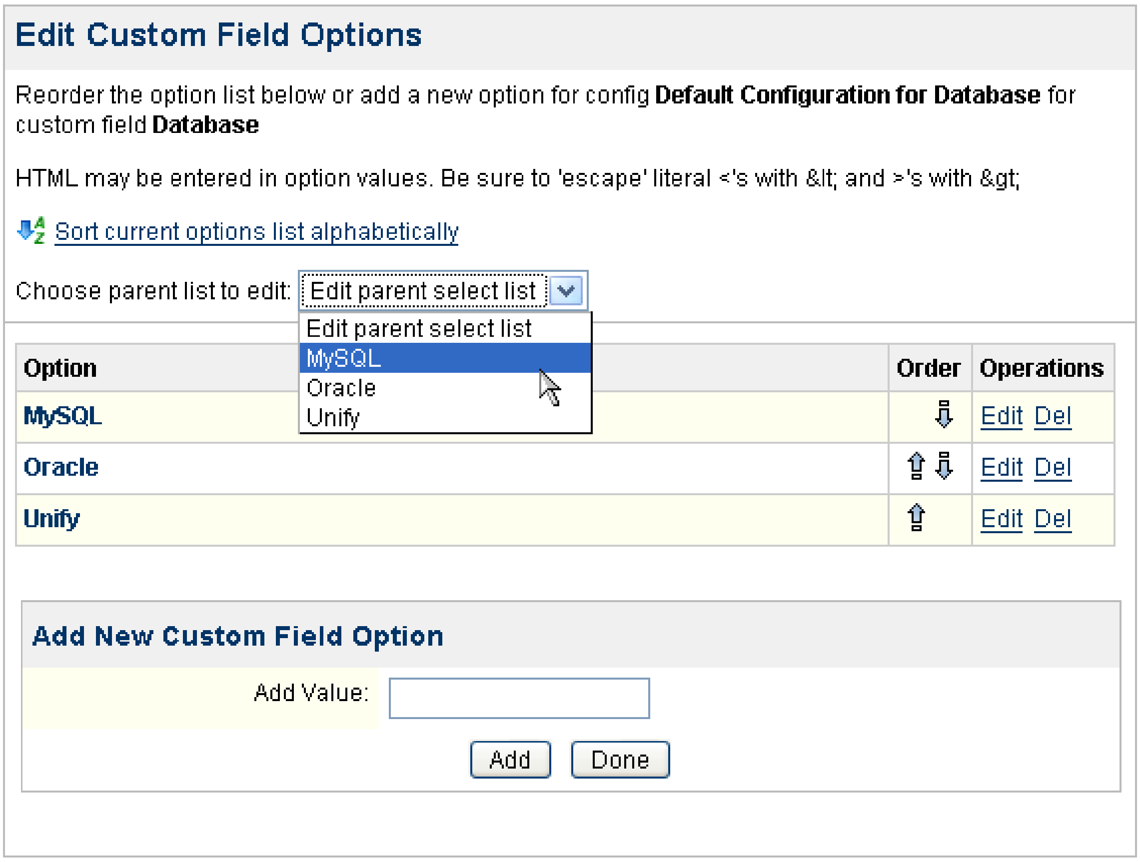
For most custom fields, you can configure its default values and set the options for lists. When you click on the *configure* link, you'll be faced with a page similar to the one below.



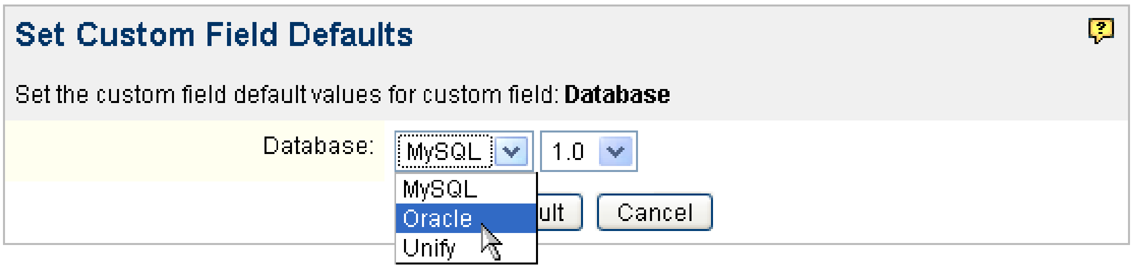
You'll notice that there is a configuration scheme named *Default Configuration Scheme for...*. This is the configuration scheme created automatically by JIRA when you initially added your custom field. The *Applicable contexts for scheme* refers to context that this scheme will be applied to; which projects & issue types the defaults and options will be displayed. For most people this will be only thing you need to know about custom field configuration schemes. You can edit the context by clicking *Edit configuration* or the edit icon on the top left hand corner.



Here you can edit the label and description of the configuration scheme. These are used for administrative purposes only and isn't shown to the end users. You can also change the context that this scheme is to be applied to here. It's now easier than ever to change the projects or issue types for the configuration context.



Select lists, multi select lists and cascading selects lists can have their options manipulated. You can add, remove and sort the options alphabetically. You can also have HTML in an option value. Be sure to use complete all tag pairs and ensure that it will display correctly.

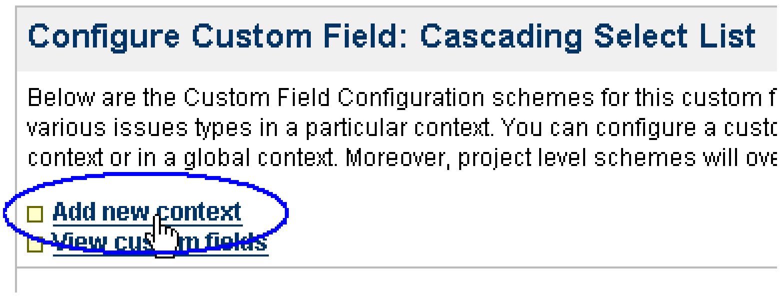


Click the *Edit defaults* to modify the default value of a custom field for this configuration scheme. Setting the defaults will take you to a screen that is particular to the issue type. Certain custom fields such as calculated custom fields may not allow for defaults to be selected and will not have the "edit defaults" link. Date fields offer a checkbox to make the default the current date. To clear the default of a select field, click *Edit defaults* and then click on the current default so it is no longer highlighted and then save, as described here.

Managing multiple configuration schemes

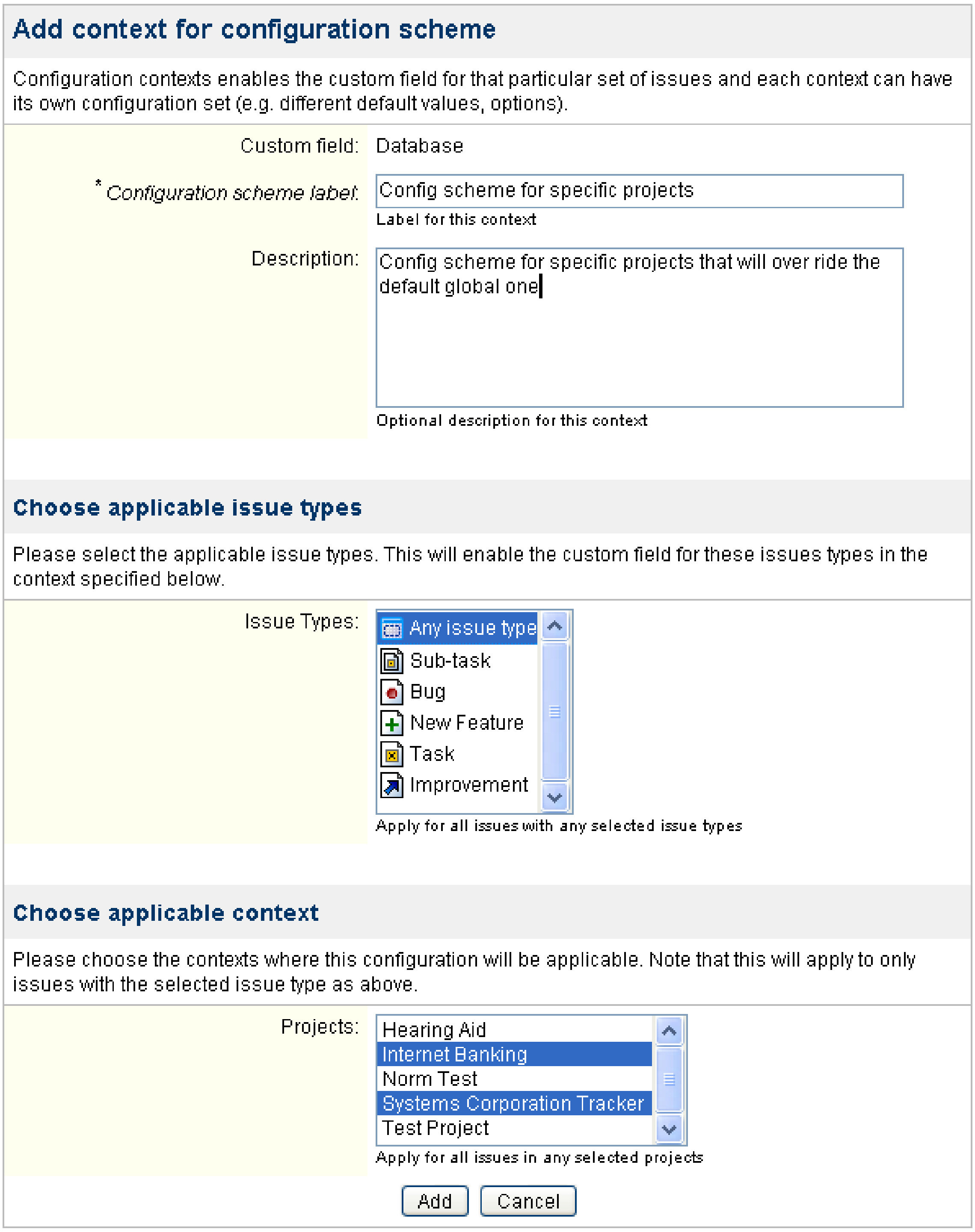
Since JIRA 3.2, it is now possible to configure a custom field differently for different issue types and project combinations. This can be achieved through configuring different custom field schemes.

1. Click on the *Add context* link to create a new custom field configuration scheme.

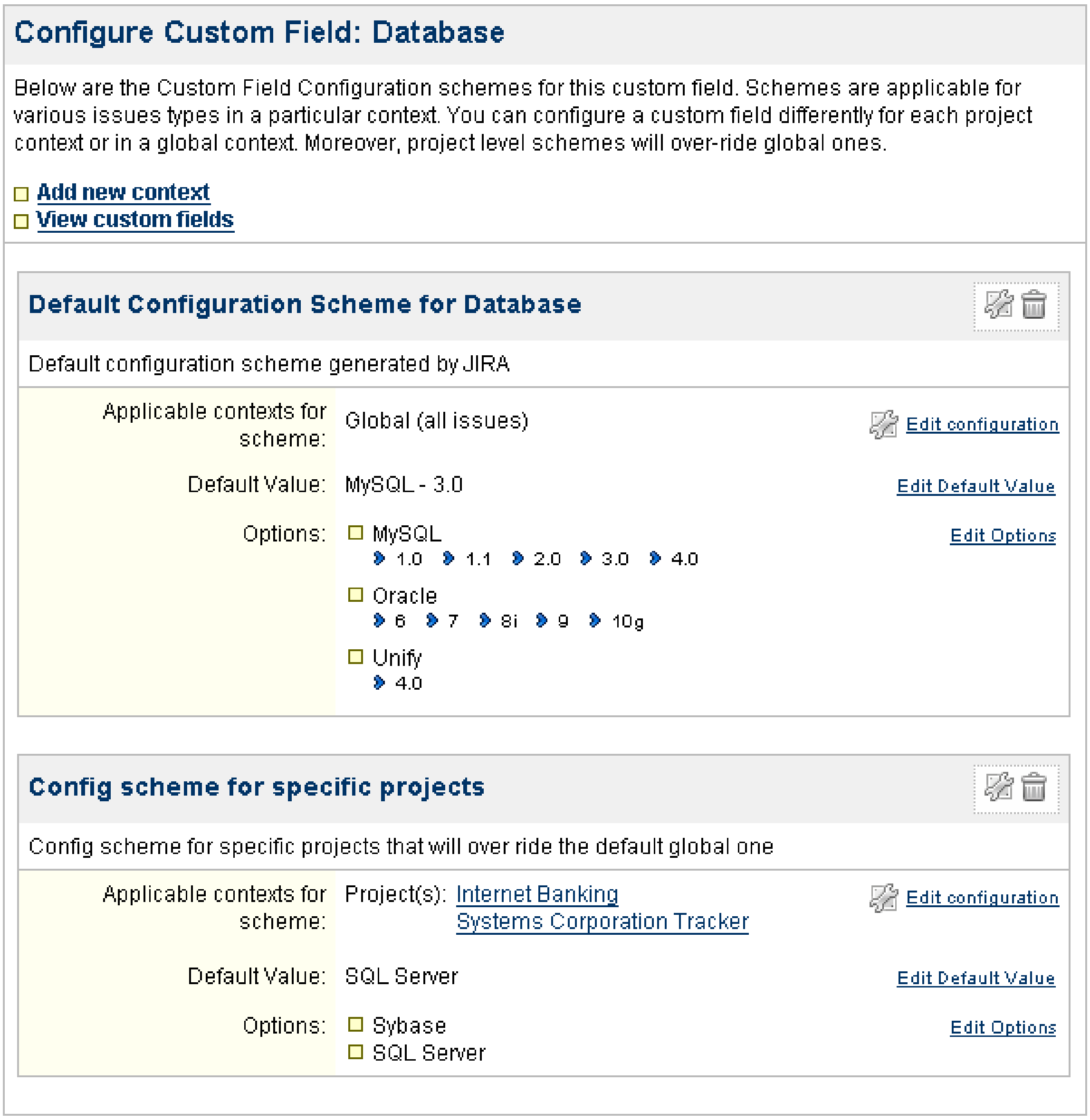


2. You'll see a screen that very similar to the edit configuration scheme. Here you can select the applicable context for your new configuration scheme. One difference is that the project context will only show projects and options that have not be previously selected in another configuration scheme. So if you already have an existing "Global" configuration scheme, that option will not be available. Moreover, be aware that project specific configuration scheme will override Global configurations. For example, if you

have one global configuration scheme with one default value and a project configuration scheme with a different value, the project value will be used instead.



3. Click *Add*
4. You will now have a new configuration scheme that can be reconfigured separately to the default scheme. You can add different default values and options for each one. In the screen show below, the *Database* custom field have specialised options and defaults for two to the projects, which will over-ride the global options list.



Additional Resources

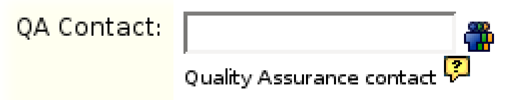
- Adding a custom field tutorial video - Watch this short tutorial video to see how to add and configure a new custom field. Please note the JIRA version and JIRA edition of the tutorial video before watching.

Creating Help for a Custom Field

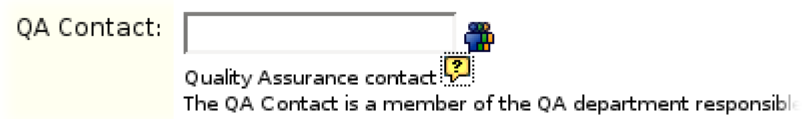
To provide online help for a custom field, use HTML or Javascript in the field's description. E.g. you can have a simple link to an external help page:

```
<a href="http://www.mycompany.com/jirahelp/fieldhelp.html">get help</a>
```

Or using Javascript, you can have help text right in the field:



where clicking the help icon makes hidden help text appear:



This can be done by entering the following as the field's description:

```
Quality Assurance contact
<script type="text/javascript">
  function showHelp() {
        var listenersDiv = document.getElementById("qaFieldHelp");
        if (listenersDiv.style.display == 'none') {
          listenersDiv.style.display = '';
        } else {
          listenersDiv.style.display='none';
        }
  }
</script>
<a href="#"  onclick="showHelp(); return false;"><img src="/images/icons/help_blue.gif"/></a>
<div id="qaFieldHelp" style="display:none">
  The QA Contact is a member of the QA department responsible for taking this issue through
testing.
  They will be notified by email of this and subsequent issue state transitions.
</div>
```

(Incidentally, Javascript in descriptions can also be used to set field values.)

Specifying Field Behaviour

On this page:

- What is a 'Field Configuration'?
- Editing a Field Configuration
    - Editing a Field's Description
    - Hiding/Showing a field
    - Required/Optional fields
    - Renderers
- Managing Multiple Field Configurations
    - Default Field Configuration
    - Adding a Field Configuration
    - Editing a Field Configuration
    - Deleting a Field Configuration
    - Copying a Field Configuration
- Activating a Field Configuration

What is a 'Field Configuration'?

A **Field Configuration** provides the ability to change field behaviour. For each field, a Field Configuration specifies:

- the **description** that appears under the field when an issue is edited
- whether the field is **hidden** or **visible**
- whether the field is **required** (i.e. the field will be validated to ensure it has been given a value) or **optional**
- (for text fields only) which **renderer** to use

A Field Configuration specifies individual behaviour for every issue field, including both standard fields and custom fields.

You can create multiple Field Configurations (see below). You can then associate different Field Configurations with different issue types by creating a Field Configuration Scheme. Once created, a Field Configuration Scheme can be associated with one or more projects, allowing you to control field behaviour on a per project, per issue type basis.

> For information about placing fields on Screens, and using Screen Schemes to associate screens with issue operations, please see the Overview.

Editing a Field Configuration

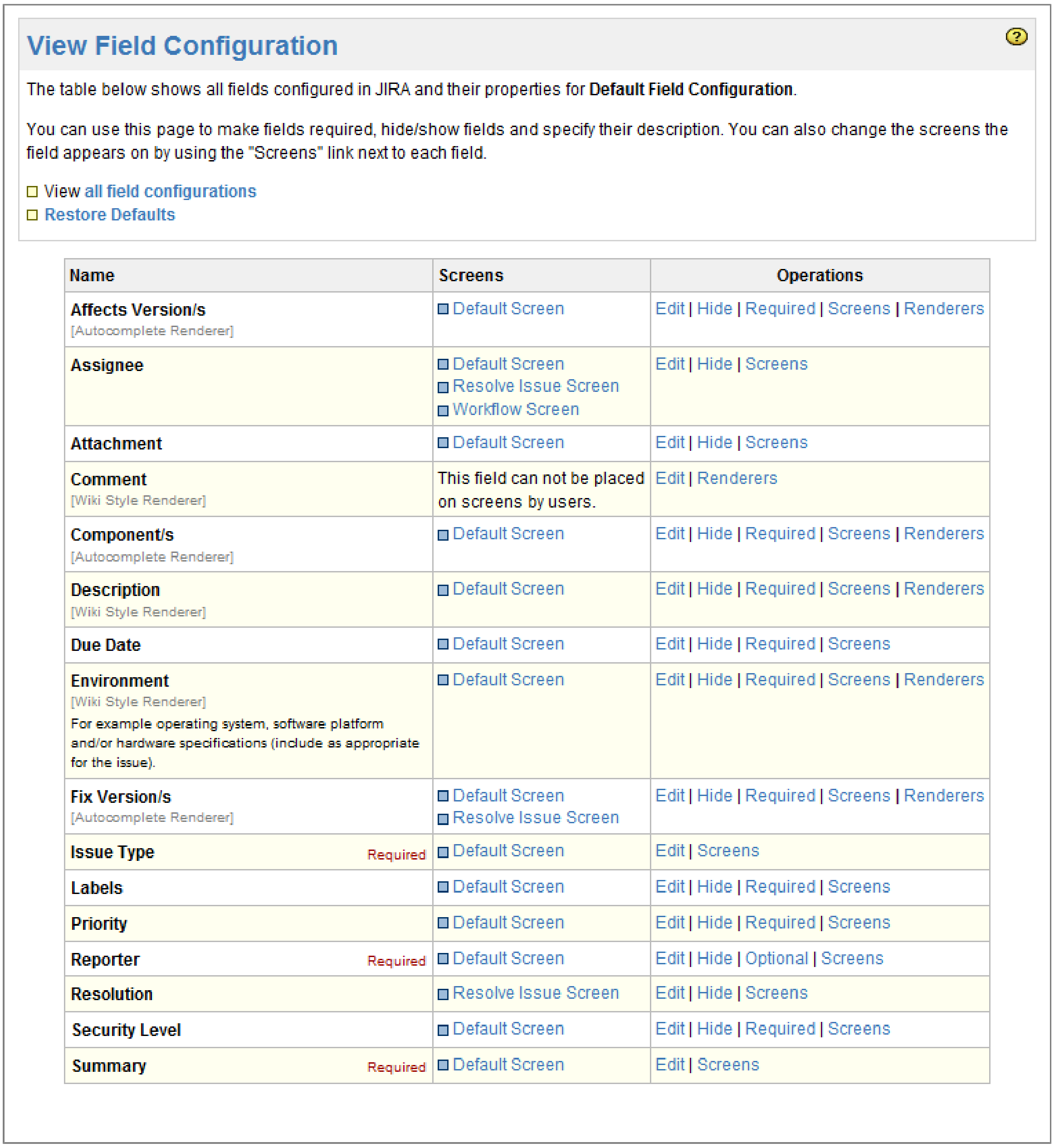
To change the behaviour of fields, you first need to navigate to the Field Configuration. The way this is done depends on the edition of JIRA:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click the **'Issue Fields'** sub-menu on the left-hand column, and choose '**Field Configurations**' from the list.
4. Locate the Field Configuration of interest, and click the '**Configure**' link. (Note: the 'Edit' link only allows you to change the Name and Description.)
5. This will bring you to the '**View Field Configuration**' page.

The "View Field Configuration" page lists all system and custom fields in a table as shown below. The "Operations" column lists all the operations that are available for each field. These operations could be:

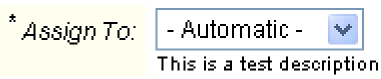
- Edit — change the field's description
- Hide/Show — hide the field from view or show it
- Require/Optional — set a field to be required (so that whenever a field is edited it must be given a value) or optional.
- Renderers — change a field's renderer (see Configuring Renderers for more information).

Screenshot: Field Configuration - View Issue Fields



Editing a Field's Description

Fields can be given descriptions to better identify the meaning of the field. These descriptions are usually displayed under the field on the creation of an issue and whenever it is edited. An example of this, is shown below.



To edit the description of a field:

1. On the 'View Field Configuration' page, click on the '**Edit**' link next to the field you want to change. This will bring you to the 'Edit Field Description' page.
2. On this page you can edit the field's description
3. Click the '**Update**' button.

Hiding/Showing a field

If your organisation or project has no use for a particular field, you have the option to hide it. Hiding a field will ensure that the the field does not appear on any Screens (i.e. issue operation Screens, workflow transition Screens) where the Field Configuration applies.

Hiding a field in the Field Configuration is distinct from not adding a field to a Screen. Fields hidden through the Field Configuration will be hidden in *all* applicable Screens, regardless of whether or not they have been added to the Screen.

> **For fields that have a default value:**
> If the field is hidden in the Field Configuration, then it will not receive a value when an issue is created, regardless of whether the field is present on the 'Create Issue' screen(s). (The following fields can have a default value: 'Resolution'; 'Status'; 'Priority'; 'Issue Type'; custom fields.)

To hide a field:

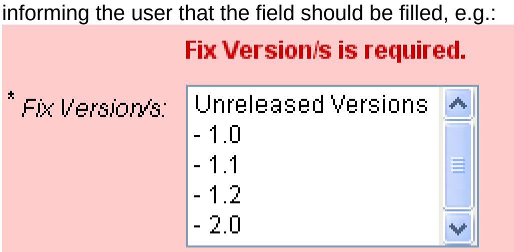
1. On the 'View Field Configuration' page, click the '**Hide**' link next to a field you no longer want. The field will then fade to grey to signify that it has been hidden.
2. As per the image above, the 'Environment' field has been hidden. You can make this field visible again anytime by pressing on the '**Show**' link.

> The fields 'Summary' and 'Issue Type' cannot be hidden and as such there is no 'Hide' option available for these fields.

> **Please note:**
> If you hide the '**Fix For Version**' field, the Change Log and Road Map reports will not work.

Required/Optional fields

Certain fields within your organisation may be compulsory for issues. In this case you can set a field to be required, so that JIRA validates that the field has been given a value whenever an issue is edited. If a required field has not been given a value, JIRA will return an error informing the user that the field should be filled, e.g.:



> If you set a field to "required", ensure that the field is present on your 'Create Issue' screen(s). Note that in you can have different field configurations for different projects and issue types (see 'Associating field behaviour with Issue Types'); so you need to ensure that all "required" fields are present on the 'Create Issue' screens for all associated projects and issue types (see 'Associating screens with Projects and Issue Types'). There is a feature request at JRA-5783 to make a field required only on one transition. Please watch it for status updates.

To make a field required:

1. On the 'View Field Configuration' page, click the '**Required**' link next to the appropriate field. The text "Required" will appear next to the field.
2. As per the image above, the 'Fix Versions' field has been made required. You can make this field optional again by clicking the '

Optional' link.

> Fields that are hidden cannot be set to required. Making a hidden field required will make it "shown" as well.

Renderers

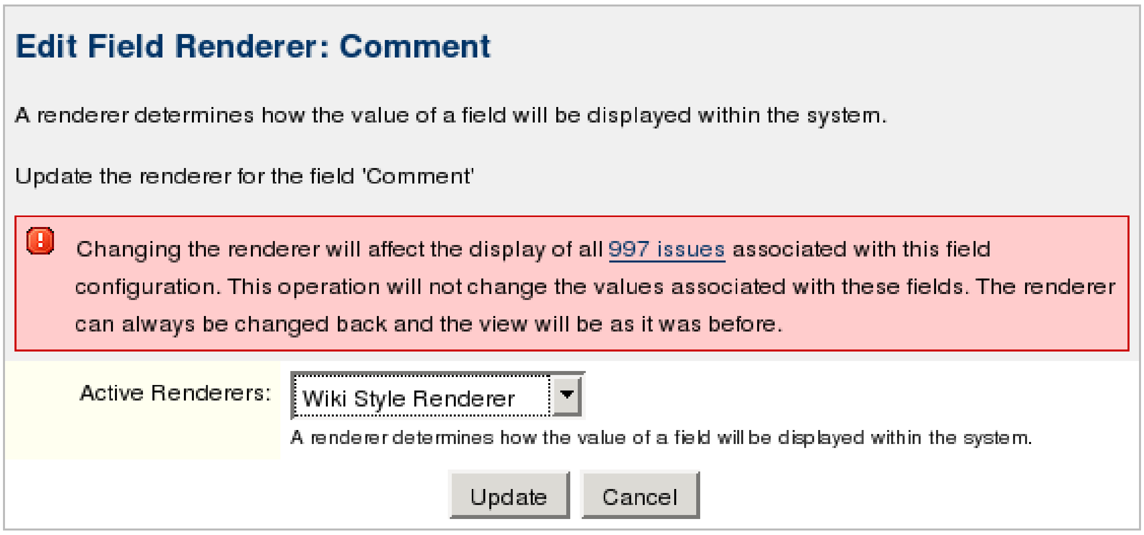
> Before you begin, please read 'Configuring Renderers', paying particular attention to the section 'Implications for JIRA operations'.

The "View Field Configuration" page indicates which renderers are currently enabled for all renderable fields.

In the screenshot *"Field Configuration - View Issue Fields"* (above), you will notice the grey text 'Wiki Style Renderer' under the Description field's name in the leftmost column. This indicates that the field is currently configured to use the Atlassian Wiki Renderer. The grey text 'Default Text Renderer' under the Comment field's name indicates that the field is currently configured to use the Default Text Renderer.

- To see how the field will look when it is displayed to a user, please see Editing Rich-Text Fields.

To change the renderer type for a specific field, click on the '**Renderers**' link in the 'Operations' column of the screen for the field you want to change. This will take you to a page where you will have the option to select a renderer from all configured and available renderers.



As shown above, this page will warn you if there are issues that will be affected by the change. If no issues will be affected then the warning does not show. From this page, choose the renderer you wish to use and click '**Update**'. You are then presented with a confirmation page, shown below.

Click the '**Update**' button to finish setting the new renderer on the field.

> Changing the renderer only affects the *display* of the issue data that exists in the system. You can therefore toggle back and forth between renderer types safely.

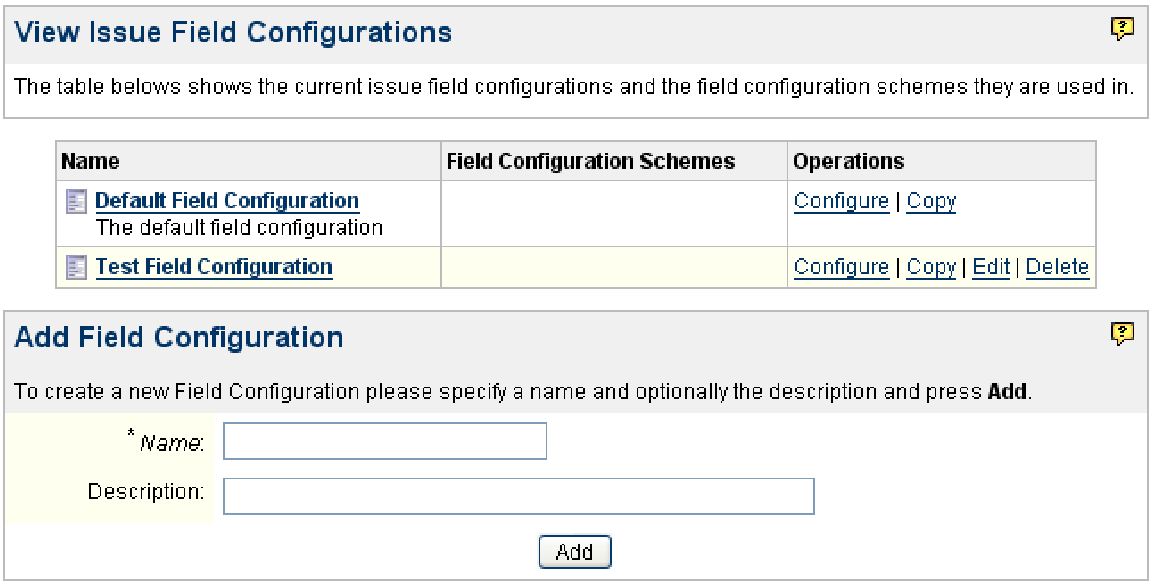
Managing Multiple Field Configurations

You can create multiple field configurations for use on separate projects and issue types.

> Multiple field configurations are organised into Field Configuration Schemes based on issue type. A scheme can be associated with one or more projects, allowing you to control fields on a per project per issue type basis. See Associating Field Behaviour with Issue Types for details.

To create, edit, delete and copy individual field configurations, go to the "View Field Configuration" page as follows:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click the '**Issue Fields**'' sub-menu on the left-hand column, and choose '**Field Configurations**' from the list.
4. You will now see a list of all your current field configurations.



Default Field Configuration

When JIRA is installed, the 'Default Field Configuration' is created automatically. All new projects are associated with this configuration. This configuration is also used for projects that are not associated with a Field Configuration Scheme..

> It is not possible to delete the Default Field Configuration.

Adding a Field Configuration

1. The '**Add**' new field configuration form is located at the bottom of the 'View Field Configuration' page
2. Enter the name of the new configuration on this form.
3. You can optionally add a description to this configuration for better identification.
4. Click on the '**Add**' button to submit the form. The page will be automatically updated with your new field configuration added.

> A newly created Field Configuration will not take effect until it has been activated (see below).

Editing a Field Configuration

1. On the 'View Field Configuration' page, click the '**Edit**' link next to the desired field configuration.
2. You will now see the 'Edit Field Configuration' page. Here it is possible to edit the configuration name and description.
3. Click on the '**Update**' button.
4. On completion you will be returned to the page where you can view your changes.

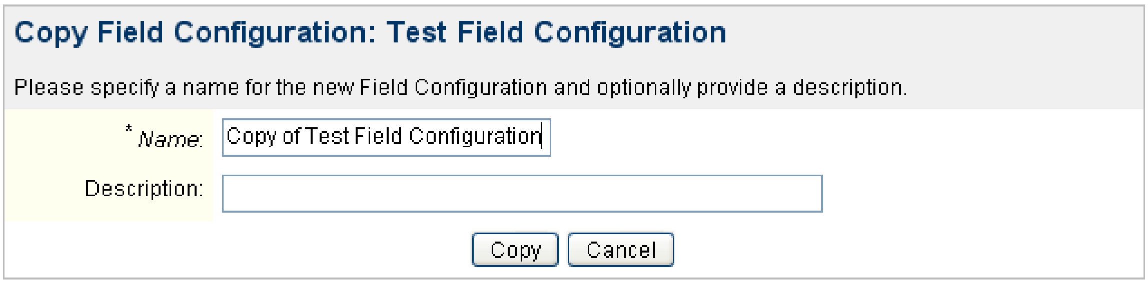
Deleting a Field Configuration

1. On the 'View Field Configuration' page, click the '**Delete**' link next to the desired field configuration.
2. Click the '**Delete**' button to confirm this operation.
3. The 'View Field Configuration' page will now show the updated list of the field configurations.

- The Default Field Configuration cannot be deleted.
- You can only delete a field configuration that is not associated with a Field Configuration Scheme.

Copying a Field Configuration

1. On the 'View Field Configuration' page, click the '**Copy**' link next to the field configuration you wish to copy.
2. This will bring you to the 'Copy Field Configuration' page.
3. Enter the name and description of the new field configuration.
4. Click the '**Copy**' button.
5. You will now be directed back the 'View Field Configuration' page, with your new field configuration added to the list. The field settings on the original and the new field configurations will be identical.



A newly created Field Configuration will not take effect until it has been activated (see below).

Activating a Field Configuration

To activate a Field Configuration:

1. configure a Field Configuration Scheme to associate the Field Configuration with appropriate issue types;
2. then associate the Field Configuration Scheme with a project.

For details of both procedures, see 'Associating field behaviour with Issue Types'.

Associating Field Behaviour with Issue Types

On this page:

- What is a 'Field Configuration Scheme'?
- Field Configuration Schemes
- Adding a Field Configuration Scheme
- Configure a Field Configuration Scheme
    - Associating a Field Configuration with an Issue Type
    - Removing an association between a Field Configuration and an Issue Type
    - Editing an association between a Field Configuration and an Issue Type
- Editing a Field Configuration Scheme
- Deleting a Field Configuration Scheme
- Copying a Field Configuration Scheme
- Associating a Field Configuration Scheme with a Project

What is a 'Field Configuration Scheme'?

A **Field Configuration Scheme** maps Field Configurations to issue types. A Field Configuration Scheme can be associated with one or more projects.

This means that you can define Field Configurations for a particular issue type of a given project. For example, it is possible to have a separate field configuration for the 'Bug' issue type and the 'Improvement' issue type for the 'Test' Project.

Because field configuration schemes can be associated with more than one project, your administrative workload is minimised as you can reuse the same field configuration for issue type mappings across multiple projects.

Field Configuration Schemes

Scheme operations are available from the View Field Configuration Scheme page. To reach this page follow these steps:

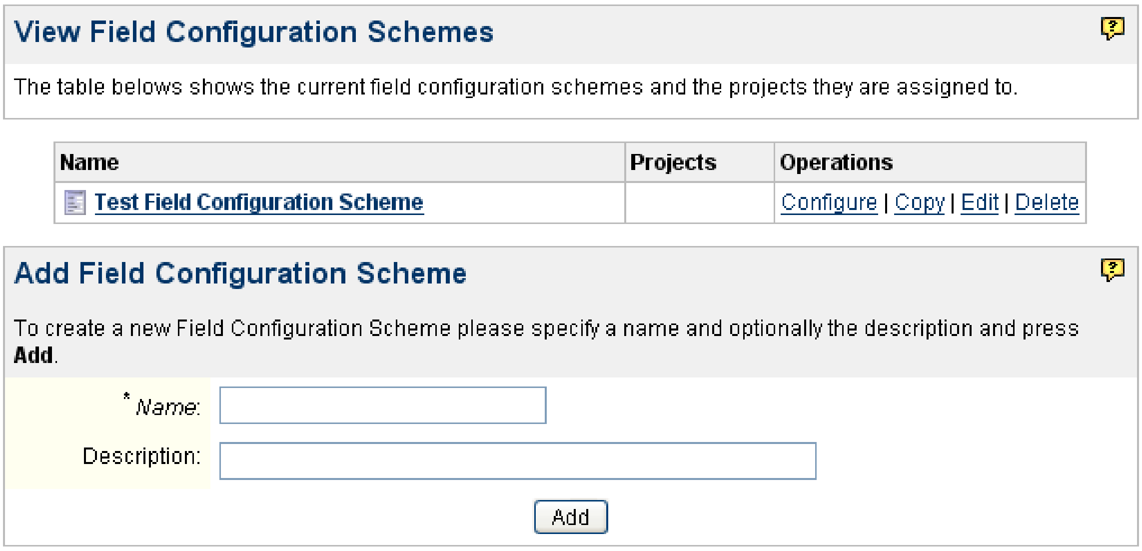
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on

the dashboard.
3. Click the '**Issue Fields**' sub-menu on the left hand side if it is not open already, and choose '**Field Configuration Schemes**' from the list.
4. You will be directed to the page 'View Field Configuration Schemes' with a list of all the Field Configuration Schemes currently configured. From this page you can:
    - Add — create a new Field Configuration Scheme
    - Configure — add or remove associations between issue types[1] and Field Configurations[2].
    - Edit — edit the name and description of the Field Configuration Scheme.
    - Delete — remove a Field Configuration Scheme
    - Copy — create a new Field Configuration Scheme with the same details as an existing one

[1] To create and edit Field Configurations, please see 'Configuring field behaviour'.
[2] To create and edit Issue Types, please see 'Defining 'Issue Type' field values'.

Adding a Field Configuration Scheme

1. The 'Add New Field Configuration Scheme' form is located at the bottom of the 'View Field Configuration Scheme' page (described above).
2. On this form enter the name of the new scheme.
3. You can optionally add a description to the scheme for better identification.
4. Click the '**Add**' button. The Field Configuration Scheme list will be updated automatically with the new scheme.

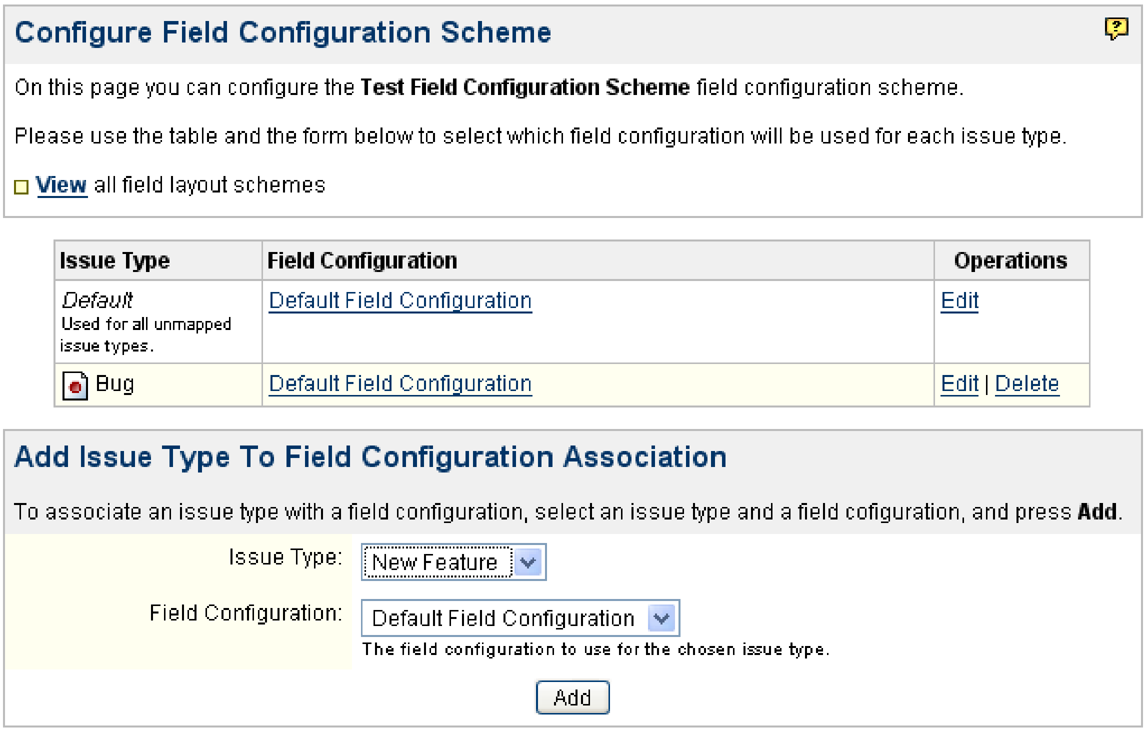


Configure a Field Configuration Scheme

With this operation you can associate, un-associate or change an association between a Field Configuration and a particular issue type. To do this please follow these steps:

1. Click the '**Configure**' link in the same row as the Field Configuration Scheme you wish to configure.
2. The 'Configure Field Configuration Scheme' page will appear, showing the scheme's current mappings of Field Configurations to issue types.
3. The operations available when configuring a field configuration scheme are:
    - Associate an issue type to a field configuration
    - Remove an association between an issue type and a field configuration
    - Edit an association between an issue type and a field configuration

If you have not added any field configurations you will only have the Default Field Configuration to work with.



Associating a Field Configuration with an Issue Type

To associate an issue type with a field configuration:

1. Select the issue type you wish to associate.
2. Select the field configuration you wish to associate with this issue type
3. Click the '**Add**' button. The table will above will be automatically updated with the the issue type in the left most column and the associated field configuration in the central column.

> An issue type can only have one association within a given configuration scheme.

> If an issue type does not have an association in the scheme, the field configuration associated with the *Default* entry in the scheme will be used for issues of that type.

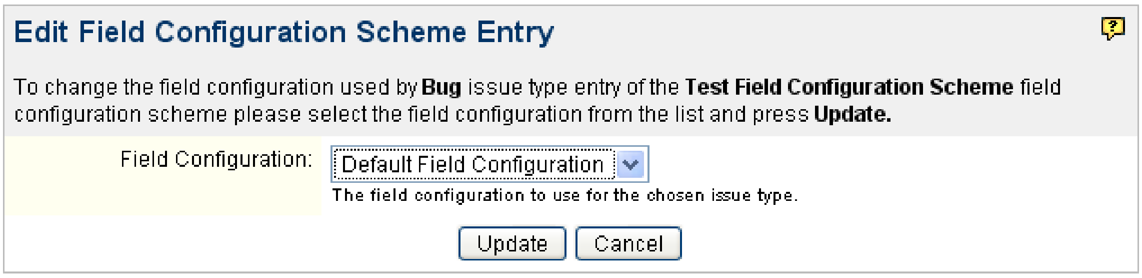
Removing an association between a Field Configuration and an Issue Type

1. Click the '**Remove**' link next to the issue.
2. The issue type association will automatically be removed from the field configuration scheme.

> The *Default* entry cannot be removed the scheme.

Editing an association between a Field Configuration and an Issue Type

1. Click the '**Edit**' link next to the issue.
2. Select the new field configuration you would like to associate with this issue type.
3. Click the '**Update**' button.
4. The Issue Type will now be associated with the new field configuration.



Editing a Field Configuration Scheme

To change the name or description of a Field Configuration Scheme:

1. Click the '**Edit**' link next to the desired field configuration scheme. You will now see the 'Edit Field Configuration Scheme' page.
2. Change the name and/or description as necessary.
3. Click the '**Update**' button.

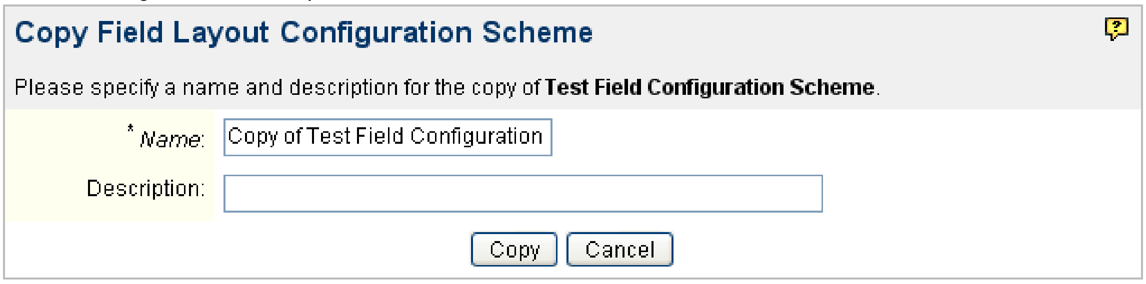
Deleting a Field Configuration Scheme

To delete a Field Configuration Scheme:

1. Click the '**Delete**' link next to the desired field configuration scheme. You will now see the 'Delete Field Configuration Scheme' page.
2. Confirm that you would like to delete the scheme by clicking the '**Delete**' button.

Copying a Field Configuration Scheme

To copy a Field Configuration Scheme:

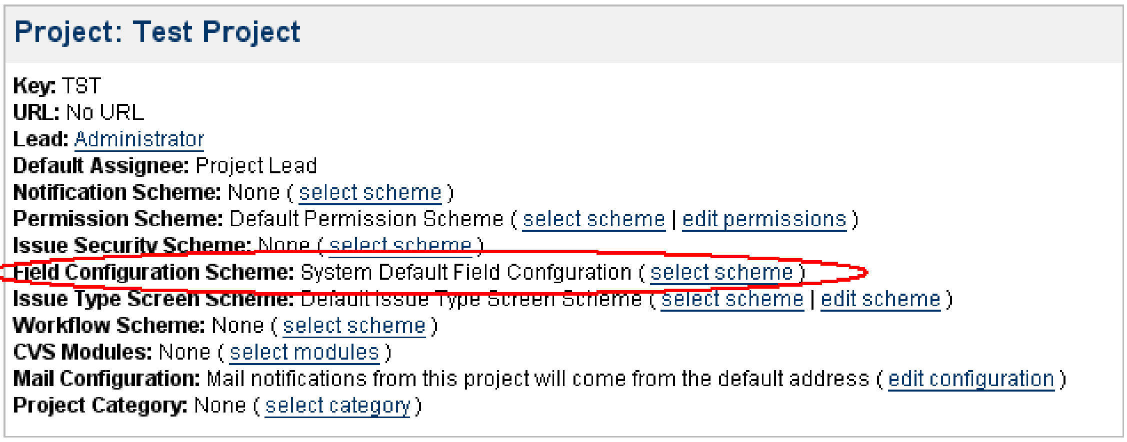
1. Click the '**Copy**' link next to the field configuration scheme you wish to copy. This will bring you to the 'Copy Field Configuration Scheme' page.
2. Enter the name and description of the new field configuration scheme.
3. Click the '**Copy**' button.
4. You will now be directed back the View Field Configuration Scheme page with your new scheme added. The new scheme will have the same configuration as the copied scheme.


Associating a Field Configuration Scheme with a Project

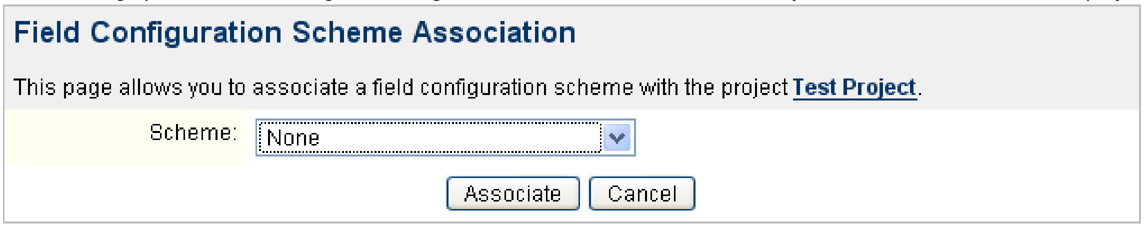
To activate a Field Configuration Scheme, you need to associate it with a project. An association means that the Field Configuration Scheme will now be applied to the chosen project. The issues in that project will use the Field Configuration that is mapped to their issue type by the scheme. Note also that you can use Issue Type Schemes to associate issue types with a project.

To associate a Field Configuration Scheme with a project:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the administration page is a list of projects which this user is allowed to manage. Select the project of interest.
4. Click on the "**select scheme**" link beside the Field Configuration Scheme caption.



5. This will bring up a list of all existing field configuration schemes. Select the scheme you want to associate with this project.



Selecting *None* will make all the issues in the project use the Default Field Configuration.

6. Click the '**Associate**' button. You will be returned to the project administration page , with the project now associated with the selected Field Configuration Scheme.

Newly created projects are not associated with any Field Configuration Schemes, and hence use the Default Field Configuration for all issues.

Configuring Renderers

On this page:

- Overview
- Renderable Fields
- Renderer Types
  - Default Text Renderer
  - Wiki Style Renderer
    - Wiki Style Renderer Macro Support
  - Autocomplete Renderer
  - Select List Renderer
- Implications for JIRA operations
  - Bulk Move
  - Bulk Edit
  - Email Notifications
    - HTML Emails
    - Text Emails
  - Excel View
  - RSS/XML View
  - Other
- Configuring Renderers
  - Applying a Renderer to a Field
  - Enabling a Renderer Plugin
    - Renderer Plugins Configuration
    - Macro Plugins Configuration - Wiki Style Renderer

Overview

JIRA *renderers* affect the display of a field's content, enabling you to choose a style which best suits your organisation and you users.

JIRA currently ships with the following renderers:

- for text fields:
  - the **Default Text Renderer**, which displays plain text; and
  - the **Wiki Style Renderer** (utilising the Confluence wiki engine), which displays rich text (HTML).
- for multi-select fields:

- the **Autocomplete Renderer**, which allows the user to start typing text which is then 'autocompleted', or to select from a drop-down list of options; and
- the **Select List Renderer**, which simply provides a drop-down list of options.
(please note: for custom fields of type "Multi Select", only the Select List Renderer is available)

Renderers are configured on a per field basis. To configure a renderer for a particular field, see 'Specifying Field Behaviour'. Note that you can configure the same field differently for different projects and issue types — see 'Associating Field Behaviour with Issue Types'.

Renderers are implemented as JIRA plugins, meaning that any renderer can be easily added to or removed from use within JIRA. This includes any custom renderers that may be developed. For details see 'Configuring Renderers' (below).

Please read Implications for JIRA operations below before configuring renderers.

> Renderers affect the rendering (view) of a field's value. This means that you can migrate to a different renderer without affecting your issue data; only the view will be changed. It also means that if you do not like the way your issues look using the new renderer, you can simply switch back with no impact on your issue data.

Renderable Fields

Potentially any field within JIRA can be a renderable field, but this only really makes sense in the case of text-based fields (for the Default Text Renderer and the Wiki Style Renderer) and multi-select fields (for the Autocomplete Renderer and the Select List Rendered). The following table shows the JIRA fields that are renderable out-of-the-box:

Field	Available Renderers
Description	Wiki Style Renderer (default), Default Text Renderer.
Comment	Wiki Style Renderer (default), Default Text Renderer.
Environment	Wiki Style Renderer (default), Default Text Renderer.
Component	Autocomplete Renderer (default), Select List Renderer.
Affects Version	Autocomplete Renderer (default), Select List Renderer.
Fix Version	Autocomplete Renderer (default), Select List Renderer.
Custom field of type "Free Text Field (unlimited text)"	Wiki Style Renderer, Default Text Renderer.
Custom field of type "Text Field"	Wiki Style Renderer, Default Text Renderer.
Custom field of type "Multi Select"	Select List Renderer.
Custom field of type "Version Picker"	Autocomplete Renderer (default), Select List Renderer.

Renderer Types

JIRA ships with the following renderers:

- for text fields: Wiki Style Renderer and Default Text Renderer
- for multi-select fields: Autocomplete Renderer and Select List Renderer

Default Text Renderer

The Default Text Renderer renders a field's content as plain text, with the following additional auto-linking feature: if the text contains text that resolves to a JIRA issue key then an HTML link will be generated that points to that issue. Below is a sample of how some description text looks when rendered through the Default Text Renderer.

> It is not possible to disable the Default Text Renderer plugin as it is required for the system to function properly. If a text field is setup to use a renderer that is later disabled, the field will revert to using the Default Text Renderer.

Wiki Style Renderer

The Wiki Style Renderer allows a user to enter wiki markup to produce html content, as described in 'Editing Rich-Text Fields' in the *JIRA User's Guide.*

This renderer uses the Confluence wiki renderer engine and therefore uses the Confluence wiki notation. The Confluence notation is easy to learn and allows for:

- Italic, bold and underlined text.
- Multiple levels of headings to organise your document.
- Bullets, numbering, tables and quotations.
- Images, screenshots, and emoticons.
- Powerful mini-applications using macros.
  A full notation guide can be found here.

> The Wiki Style Renderer can only be used with JDK 1.4 and up. The renderer will not run on JDK 1.3.

> Please note that some fields may require further field behavior configurations to be enabled.

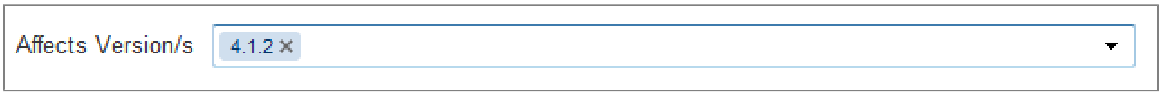
Wiki Style Renderer Macro Support

The Wiki Style Renderer supports pluggable macros in the same way that Confluence does. Macros provide an easy and powerful extension point to the wiki markup language. JIRA ships with a number of macros as described in the *JIRA User's Guide.*

> JIRA and Confluence can share macros, but keep in mind that many Confluence macros are very specific to the Confluence application and will therefore not run within JIRA. For example, the Children macro in Confluence shows links to all of a Page's child pages. JIRA has no concept of 'page' and therefore this macro will not function in JIRA.

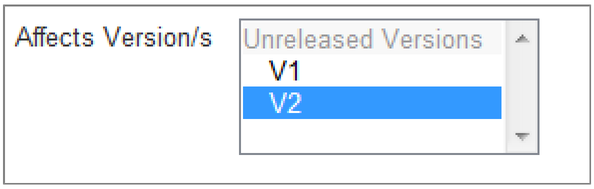
Autocomplete Renderer

The Autocomplete Renderer allows the user to start typing text which is then 'autocompleted', or to select from a drop-down list of options:



Select List Renderer

The Select List Renderer provides a drop-down list of options:



Implications for JIRA operations

The fact that JIRA allows you to configure different renderers across different projects/issue types for the same field has implications for bulk operations. Also, since the Wiki Style Renderer inherently creates HTML as its end product, there are implications as to how this will behave when issue data is viewed outside JIRA's web front-end.

Bulk Move

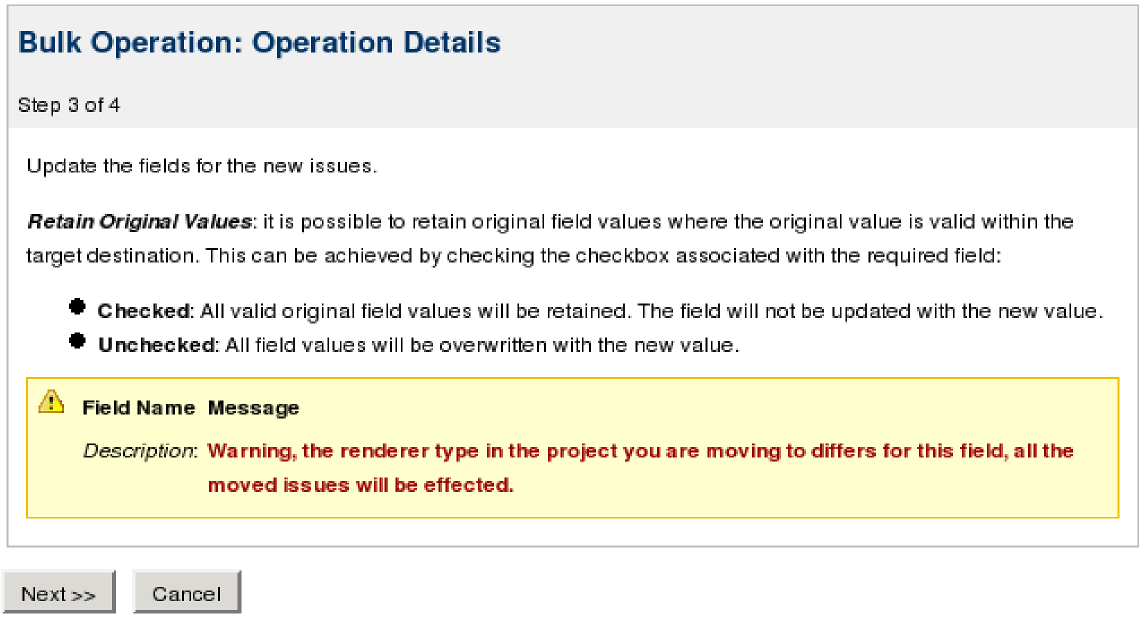
When performing a bulk move operation you can either move issues to an environment (project/issue type) where the renderer types for the fields are the same or where they will be different. If the renderer types for where you are moving to are the same then you will not notice any changes to the way the issues data is displayed once the move has occurred and the move operation will not prompt the user with any warnings.

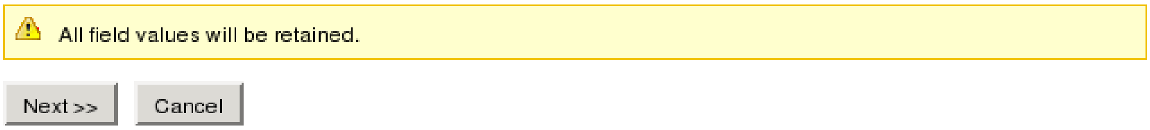
When bulk moving issues to an environment (project/issue type) that has a different renderer type defined for one of the fields being affected by the move, if any of the issues have a non empty value associated with the field, the move operation will present the user with a warning so that you can be aware of the change. The warning does not affect the move operation in any way but it is there to alert you to the fact that the moved issues' affected fields may look different in their new project/issue type.

This is best illustrated with an example. Let's say you have project 'A' which is configured to use the Atlassian Wiki Renderer for the Description field. Let's say you also have a project 'B' which is configured to use the Default Text Renderer for the Description field. You have three issues that exist in project 'A' and you want to perform a bulk move of the three issues to project 'B'. If none of the issues in project 'A' have a value set for the Description field they will be moved and you will not notice any changes since there is no value to render. If one of the issues has the following value in its Description:

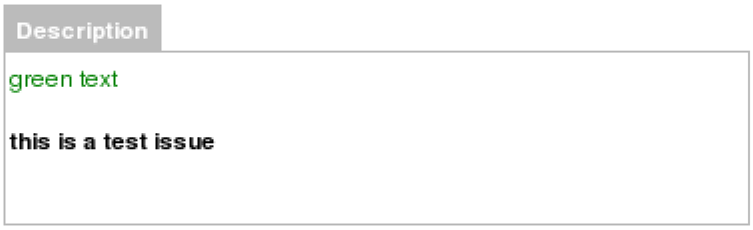
```
{color:green}green text{color}

                    *this is a test issue*
```

You would be presented with this screen in the bulk move to alert you that you are changing renderers as a result of the move:





The move operation does nothing to affect the data itself so after the move the wiki markup will display through the Default Text Renderer. In our example the before and after look like this:

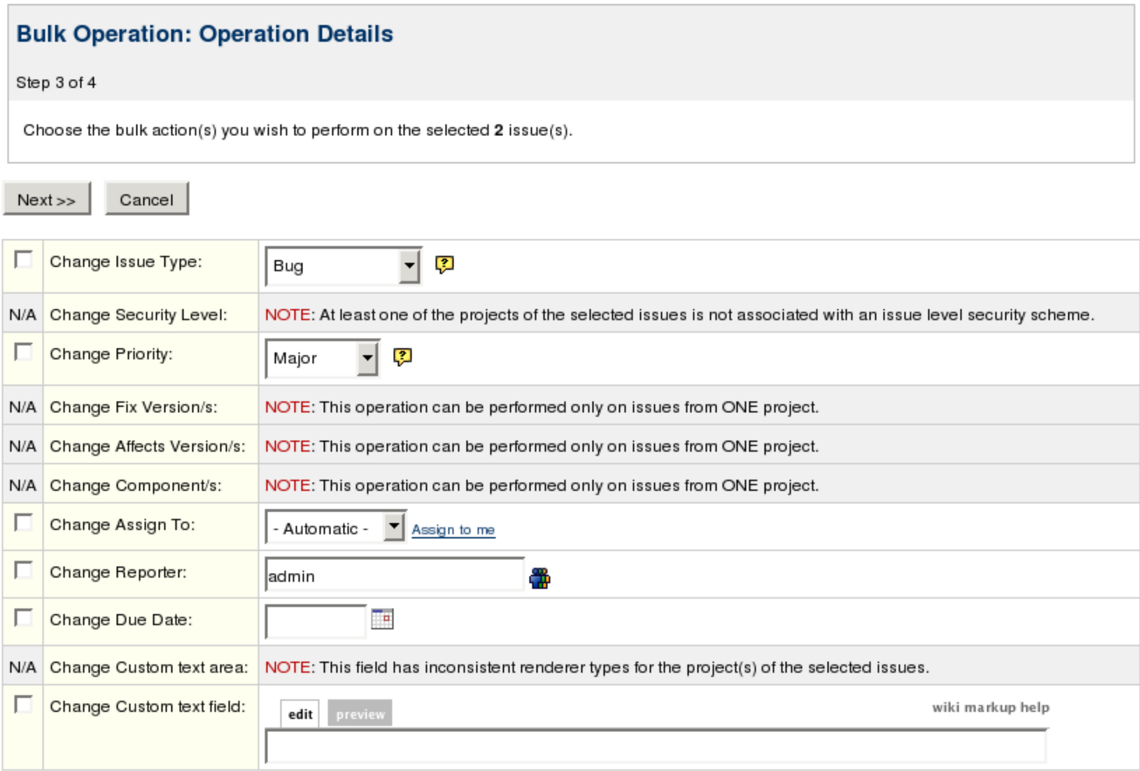


Bulk Edit

When performing a bulk edit operation the only renderable fields you may be able to bulk edit are instances of the Text Field, and Free Text Field (unlimited text) custom fields. The bulk edit operation does not allow you to bulk edit the description, environment, or comment fields.

You will only be allowed to bulk edit a renderable field if all the issues selected for edit use the same renderer type. If the renderer type differs for any of the selected issues you will be presented with an error message.

This is best illustrated with an example. Let's say you have two global custom fields, 'Custom text area' and 'Custom text field', whose types are as their names imply. Let's say you have project 'A' which is configured to use the Atlassian Wiki Renderer for both of the fields. Lets say you also have a project 'B' which is configured to use the Default Text Renderer for the 'Custom text area' field and the Atlassian Wiki Renderer for the 'Custom text field'. Let's also say that you have one issue in each project. If you were to perform a bulk edit operation on the two issues in these projects you will be presented with the screenshot below:



You will notice that for the 'Custom text area' field you are presented with an warning that the field has inconsistent renderer types and that it is not available to be selected for bulk edit. This is because the fields do not share the same renderer in the two issues. You will also notice that for the 'Custom text field' field you are presented with an editable input that allows for wiki preview. This is because the field shares the same renderer in the two issues.

Email Notifications

JIRA allows for extensive configuration in relation to email notifications. JIRA can be send out two types of emails, HTML and text (see 'Email Formatting').

HTML Emails

When using the Atlassian Wiki Renderer, the rendered content (i.e. exactly what you see on the 'View Issue' page) will be sent out in the emails. This will create emails which are as rich as the content makes it. If using the Atlassian Wiki Renderer this is the preferred type of email since it is a real representation of the wiki markup.

Text Emails

When using the Atlassian Wiki Renderer, the actual wiki markup (unrendered) will be displayed in text emails for fields that use the Atlassian Wiki Renderer. This is obviously less readable than the rendered version of the markup, but because the markup's syntax is quite simple the text does remain easy to read.

Excel View

JIRA allows the Issue Navigator view to be exported to an Excel spreadsheet. If any of the fields being exported to Excel are using the Atlassian Wiki Renderer, the value exported to the cell in Excel will be the original wiki markup. Attempting to display complex HTML within a cell in Excel adds rows and columns that make using the data for formulas very difficult.

> The unrendered wiki markup will be shown in Excel cells for fields that use the wiki renderer.

RSS/XML View

JIRA allows the Issue Navigator view to be exported to RSS/XML. If a field is using the Default Text Renderer its values will be exported in a CDATA section within the generated XML. If a field is using the Atlassian Wiki Renderer, its rendered value will be XML escaped and included in the generated XML. If the XML view is being used as an RSS feed, most RSS readers will render the generated HTML so you will see the rich content within your RSS reader.

If you would like to have this view feed out the raw values (unrendered) then you can send an additional request parameter 'rssMode=raw'. If the original link looks like this:

```
http://localhost:8080/browse/AAA-1?decorator=none&view=rss
```

Then the URL to have the raw values placed inside a CDATA should look like this:

```
http://localhost:8080/browse/AAA-1?decorator=none&view=rss&rssMode=raw
```

Other

This section describes other issues to be aware of in relation to the renderers.

- When editing a renderable custom field's default value, even if it is only ever configured to use the Atlassian Wiki Renderer you will not be presented with the 'Edit' and 'Preview' tabs. Unfortunately it is not possible, in that context, to tell which renderer should be used for editing. This said, if you enter a default value using wiki markup then this will render correctly in environments (project/issue type) where the field has been configured to use the Atlassian Wiki Renderer.

Configuring Renderers

Applying a Renderer to a Field

To enable a renderer for a particular field, edit the Field Configuration and choose the appropriate renderer for the field. For details, see Specifying Field Behaviour.

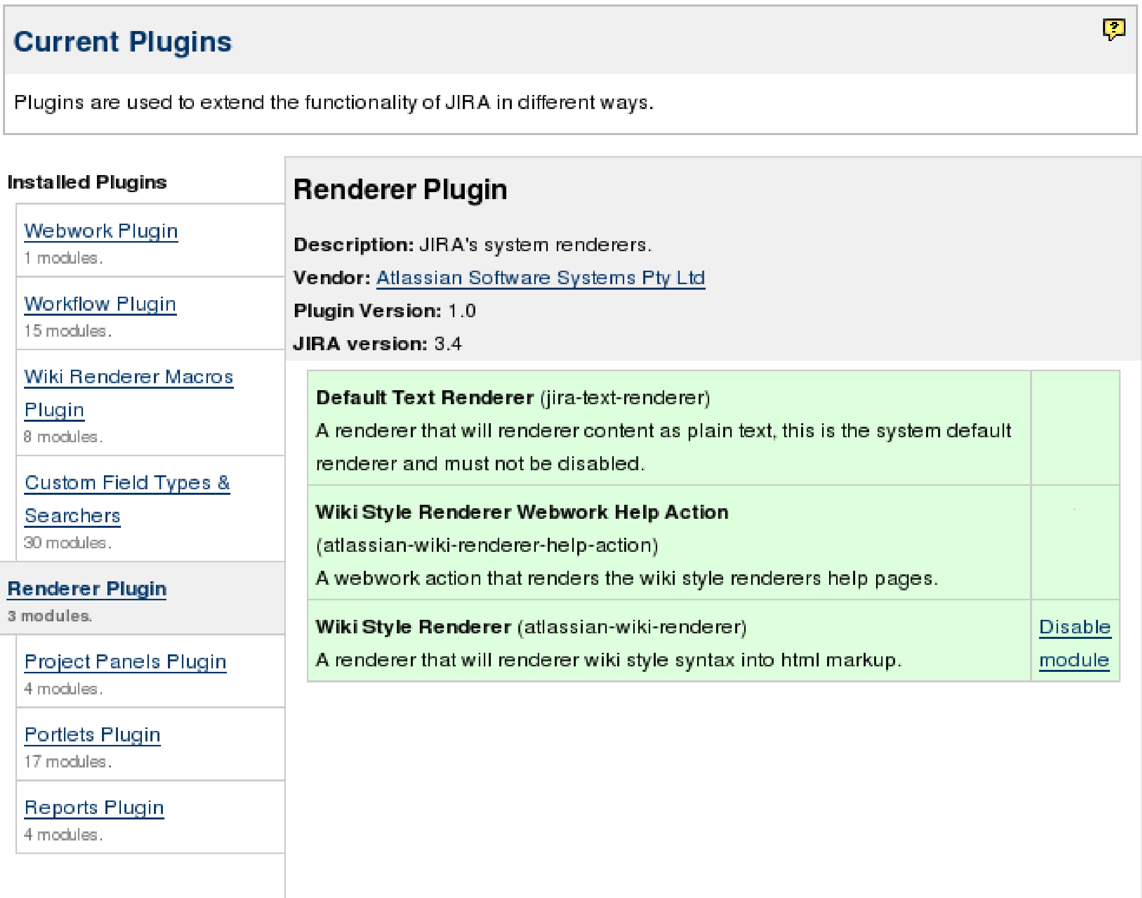
Enabling a Renderer Plugin

Renderers within JIRA are implemented as JIRA plugins. The macros that the Wiki Style Renderer uses are also implemented as JIRA plugins. For general information on plugins please see the JIRA Plugin Guide.

> Plugins are configured at a site-wide level - it is not possible to configure plugins at a project/issue type level.

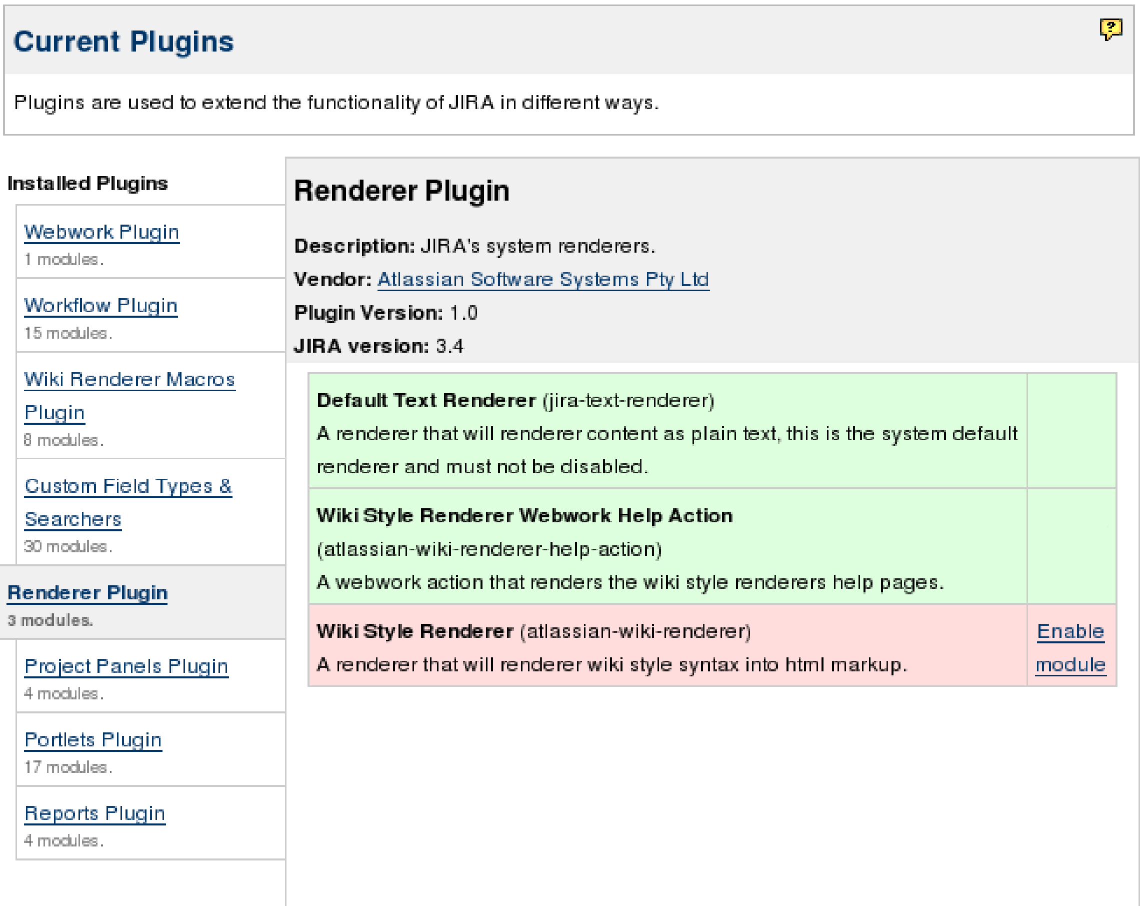
Renderer Plugins Configuration

Renderers and their dependant components, except for the default text renderer, can be enabled/disabled via the plugin administration menus. If you navigate, as an administrator, to 'Administration' > 'Plugins' and then click on the option 'Renderer Plugin' you will see the following screen.



> The plugin titled 'Wiki Style Renderer Webwork Help Action' is a front-end helper for showing the Atlassian wiki renderer notation guide and it can not be disabled.

From this screen you will see all the configured Renderers within JIRA. At the moment only two renderers exist but if more are created you will see there configuration here. If you click on the 'Disable Module' link for the 'Wiki Style Renderer' this will deactivate the renderer for the entire instance of JIRA.

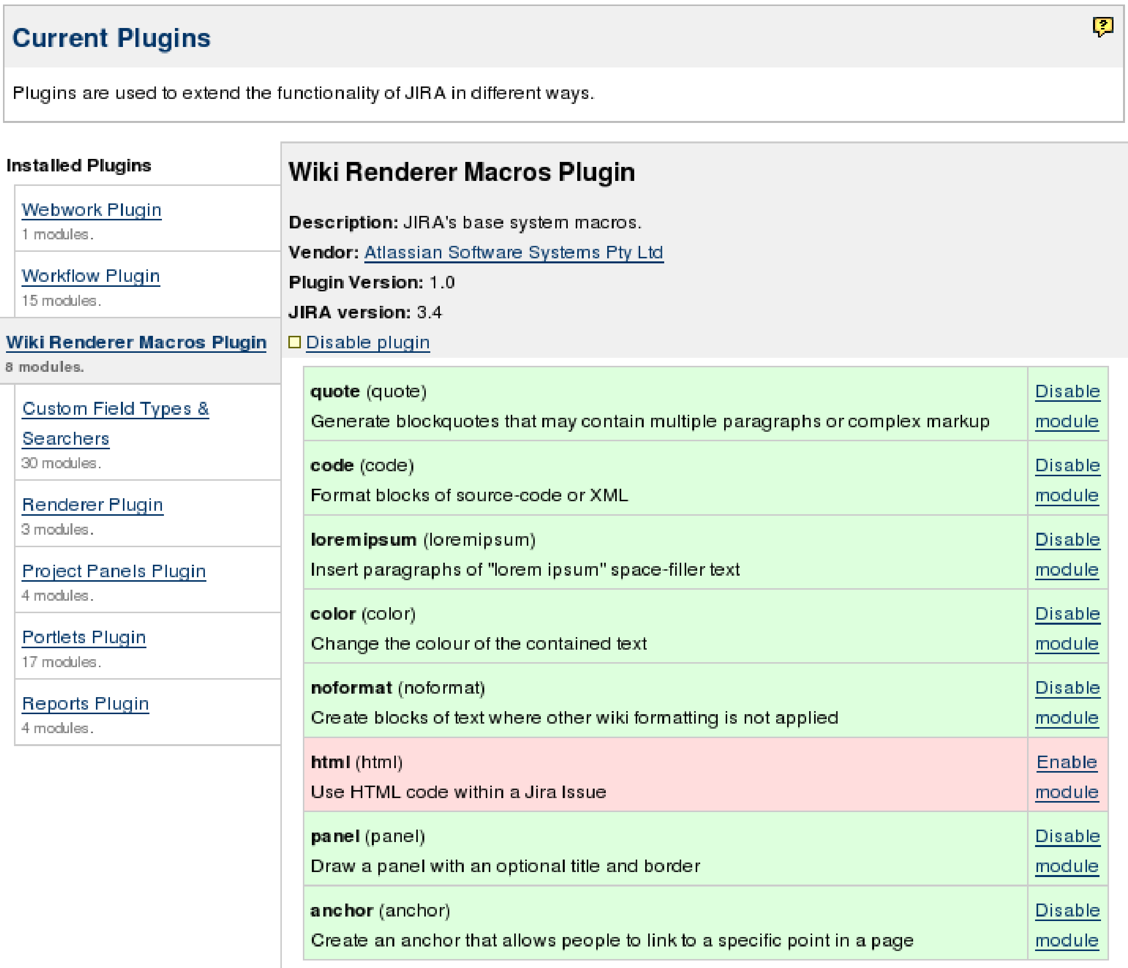


Any fields that are still setup to use the disabled renderer will fall back to the default text renderer and when you attempt to edit the field a warning message will alert you to the fact that you are configured to use a renderer that is not available.

When a renderer is disabled it will not be available for selection when changing a fields renderer. To enable the renderer just click the 'Enable Module' link. Enabling/Disabling a renderer has no effect on the renderer settings in the field configurations so it is possible to disable and then re-enable a renderer without effecting any data.

Macro Plugins Configuration - Wiki Style Renderer

The macros used by the Wiki Style Renderer can be enabled/disabled via the plugin administration menus. If you navigate, as an administrator, to 'Administration' > 'Plugins' and then click on the option 'Wiki Renderer Macros Plugin' you will see the following screen.



From this screen you will see all the configured macros within JIRA. If a macro is disabled then it will not be available to the wiki renderer. If you deploy any additional macros that you wish to use, they must be enabled here to be available to the wiki renderer. For more information on writing plugins please see the documentation on Writing Macros.

Defining a Screen

On this page:

- What is a 'Screen'?
- Configuring a Screen's Fields
    - Adding a Field to Screen
    - Removing a Field from a Screen
    - Reordering Fields on a Screen
    - Adding Time Tracking capabilities to a screen
- Adding a Screen
- Editing a Screen's Details
- Copying a Screen
- Deleting a Screen
- Configuring Tabs
    - Adding a Tab
    - Moving fields between Tabs
    - Navigating between Tabs
    - Deleting a Tab
    - Renaming a Tab
    - Reordering Tabs
- Activating a Screen

What is a 'Screen'?

Screens group multiple issue fields. Using Screens, you can control which fields are displayed, and the fields' vertical display order, during issue operations (e.g. 'Create Issue' and 'Edit Issue') or workflow transitions (e.g. 'Resolve Issue'). You can also split fields on a Screen into multiple tabs.

Screens overlap slightly with Field Configurations in regards to field visibility. Note that when a Screen is displayed to a user (during issue creation, for example) the user will see only the issue fields that:

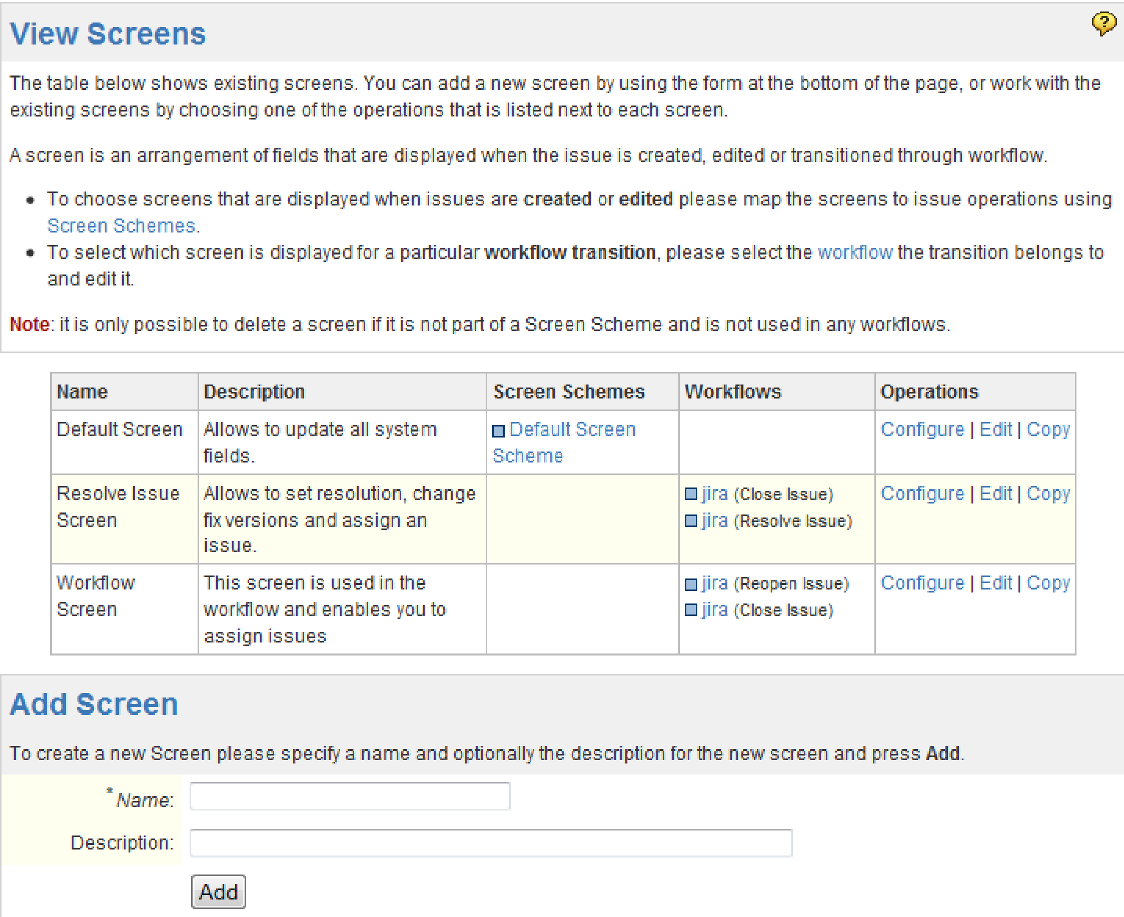
1. the user has permissions to edit (e.g. the 'Due Date' field can only be edited by users with the 'Schedule Issues' permission).

2. are present on the Screen that is associated with the 'Create Issue' operation for this issue.
3. are not hidden in the Field Configuration applicable to the issue.

> A field may be present on a Screen, but if it is hidden in an appropriate Field Configuration, it will not be visible to the user when the Screen is displayed. Note also that, if a particular field needs to be hidden at all times, it is simpler to hide the field in an applicable Field Configuration rather than remove it from all Screens. For more information please see the Overview.

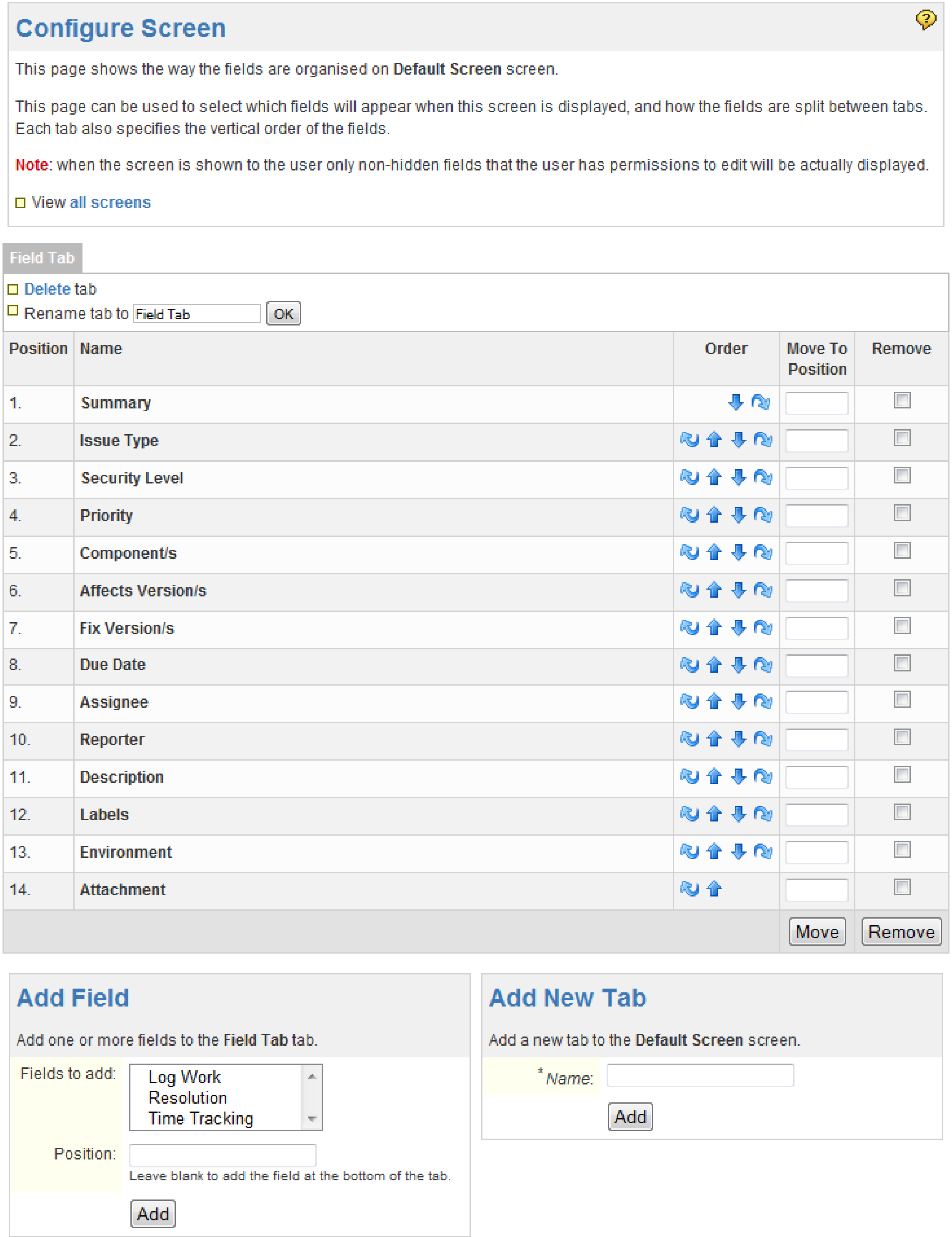
Configuring a Screen's Fields

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the **Issue Fields** section of the left-hand side column, click the '**Screens**' link. (If the **Issue Fields** section is collapsed and is hiding the **Screens** link, click the '**Issue Fields**' section heading itself to expand this section.) You will then be directed to the **View Screens** page:



From this page you can:
- Add a new screen
- Configure a screen's fields
- Edit a screen's name and/or description
- Copy a screen
- Delete a screen.

4. Click the '**Configure**' link next to the Screen of interest. You will now see that Screen's **Configure Screen** page.



Adding a Field to Screen

In the **Add Field** form, located at the bottom of the **Configure Screen** page:

1. Select the field/s that you wish to add to the screen from the '**Fields to add**' option.
2. If you wish, specify the position at which the field will be placed, by entering the position number in the '**Position**' option.

> If you have selected multiple fields and specified a position, the topmost field selected will be placed in the corresponding position and the other fields directly below it.

3. Click the '**Add**' button.

Removing a Field from a Screen

In the table of fields on the **Configure Screen** page:

1. Select the check boxes next the the fields you wish to remove.
2. Click the '**Remove**' button located at the bottom of the table.
3. The fields will be removed from the Screen and will be made available in the **Add Field** form at the bottom of the screen, for subsequent re-addition.

> The '**Summary**' field is always required by the system. If your screen is being used for a 'create issue' operation, you will need to ensure that the '**Summary**' field is on the screen, or your users will be unable to create issues.

Reordering Fields on a Screen

To change the vertical display order of fields on a screen, in the table of fields on the **Configure Screen** page:

1. Specify the number of the position to which a field should be moved inside the field's text box within the **Move to Position** column. (You can repeat this step for multiple fields by specifying a different position for each field you wish to move.)
2. Click the '**Move**' button located at the bottom of the table in the **Move to Position** column.
3. All the fields will be moved to the positions that you specified.

> Alternatively, you can click on the arrows next to the desired field to move the field up, down, to the first position or to the last position.

Adding Time Tracking capabilities to a screen

You can add the ability to log work or specify/modify time estimates to a screen by adding the **Log Work** or **Time Tracking** fields, respectively.

By adding both of these fields to a screen, your users will be able to log work *and* specify time estimates on that screen. For more information about how this works for a user, please refer to Logging work *and/or* specifying time estimates on the same JIRA screen.

To add abilities to log work and/or specify/modify time estimates on a screen, in the **Add Field** form located at the end of the **Configure Screen** page:

1. Select one or both of the following fields from the '**Fields to add**' option, depending on your requirements:
   - **Log Work** — adds a group of fields which provide the ability to log work
   - **Time Tracking** — adds a group of fields which provide the ability to specify/modify time estimates
2. Click the '**Add**' button.

> If these fields cannot be seen in the **Fields to add** selection box and they have not already been added to the screen, then confirm that JIRA's Time Tracking feature has been activated. These fields will not be available to add to any screen if Time Tracking is deactivated.
>
> If any screens have the **Log Work** or **Time Tracking** fields and JIRA's Time Tracking feature is subsequently deactivated, those screens will retain these fields until these fields are removed. However, the fields will not be visible to the user until Time Tracking is reactivated.

Adding a Screen

In the **Add Screen** form, located at the bottom of the **View Screens** page (see 'Configuring a Screen's Fields', above):

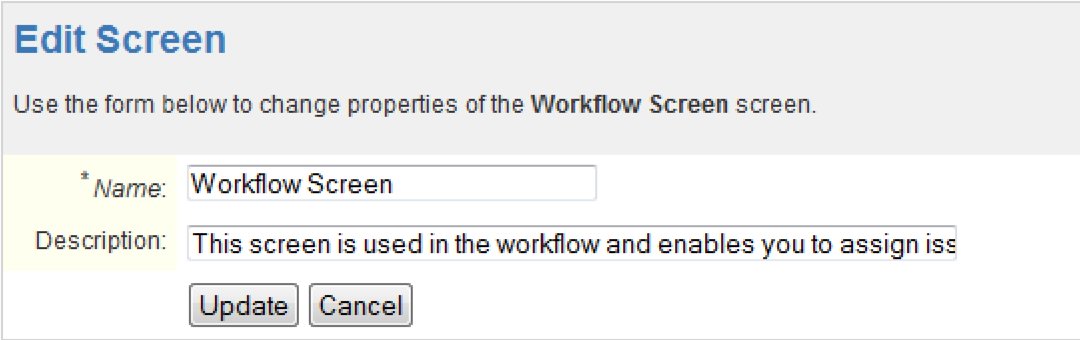
1. Enter the name of the new Screen in the '**Name**' field.
2. You can optionally add a description in the in the '**Description**' field.
3. Click the '**Add**' button. The the Screen list will automatically be updated with the new Screen.

> A newly created Screen is not usable until it has been associated with either an issue operation (via a Screen Scheme) or a workflow transition. See 'Activating Screens' (below).

Editing a Screen's Details

To change Screen's name and/or description, on the **View Screens** page (see 'Configuring a Screen's Fields', above):

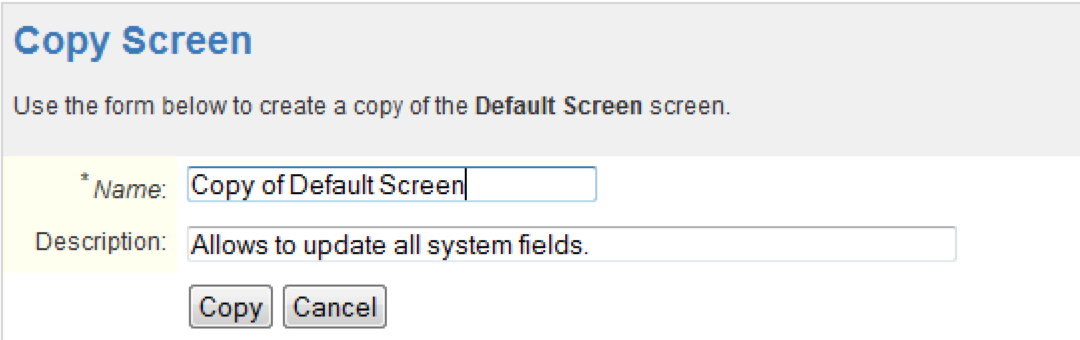
1. Click the '**Edit**' link next to the appropriate screen.
2. You will now be directed to the **Edit Screen** page where you can edit the name and/or description of the Screen.
3. Click the '**Update**' button. You will be brought back to the **View Screens** page with your updates now applied to the Screen.



Copying a Screen

On the **View Screens** page (see 'Configuring a Screen's Fields', above):

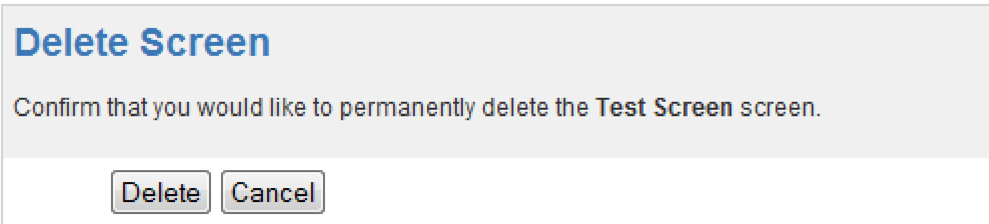
1. Click on the '**Copy**' link next to the Screen you wish to copy. You will be directed to the **Copy Screen** page.
2. Enter a name and a description for the new Screen in the respective '**Name**' and '**Description**' fields.
3. Click the '**Copy**' button. You will be brought back to the "View Screens" page, and the newly added Screen will have the same issue fields and field positions as the original field screen.



Deleting a Screen

To entirely remove a Screen from the system, on the **View Screens** page (see 'Configuring a Screen's Fields', above):

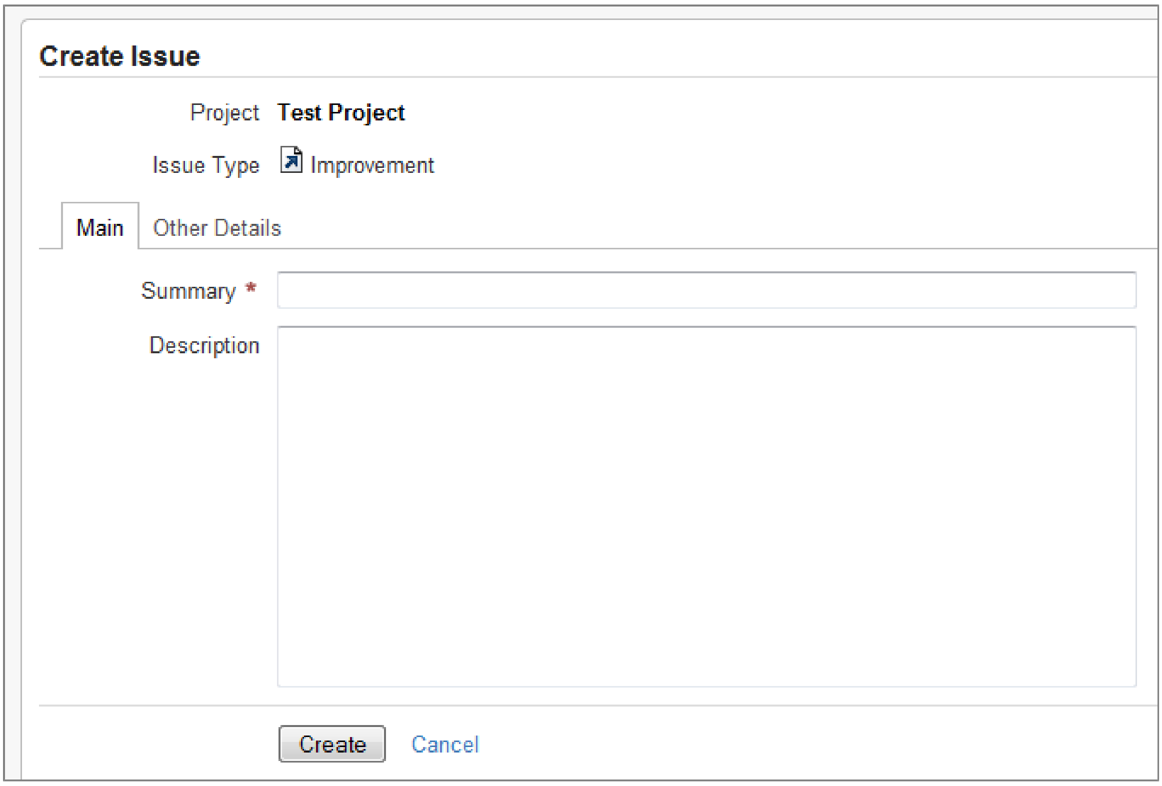
1. Click the '**Delete**' link next to the Screen you wish to delete.
2. Click the '**Delete**' button to confirm this action. You will be brought back to the **View Screens** page and the Screen removed from the list of Screens.

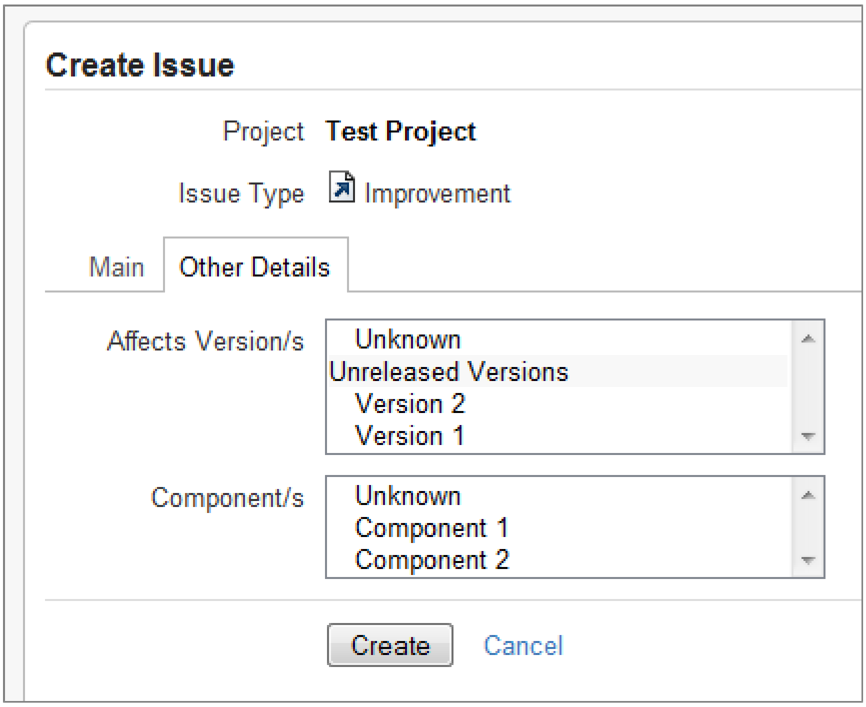


Screens that are associated with at one or more Screen Schemes, or one or more workflow transitions, cannot be deleted.

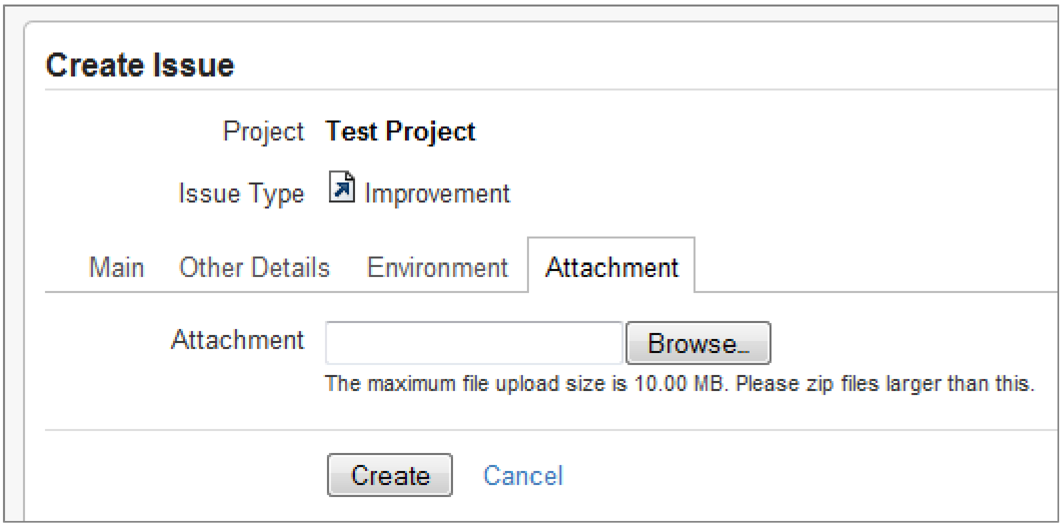
Configuring Tabs

Splitting a Screen into multiple tabs can help to group related fields. For example, the following screenshot shows a simple Screen that only shows the issue 'Summary' and 'Description' on the first tab ('Main'), and 'Affected Versions' and 'Components' on the second tab ('Other Details'):





This functionality is very useful for organising complex Screens, as you can place less used fields ('Attachment' and 'Environment', for example) onto separate tabs:



Screen tabs are available from the "Configure Screens" page (see 'Configuring a Screen's Fields', above).

Adding a Tab

In the **Add New Tab** form, located at the bottom of the **Configure Screen** page:

1. Enter the name of the new tab in the '**Name**' field.
2. Click the '**Add**' button.

Moving fields between Tabs

If your screen contains multiple tabs, you can move fields from one tab to another.

In the table of fields on the **Configure Screen** page:

1. For the field you wish to move, select the field's destination tab in the **Move to Tab** column. Repeat this for all the fields you wish to move.
2. Click the '**Move**' button located at the bottom of the table in the **Move to Tab** column.
3. All the selected fields will be moved to the appropriate tabs.

Please Note:

- Fields of type 'Date' can only be displayed in the 'Dates' area of the screen, even if they are custom fields.
- System fields on the default 'View Issue' screen (e.g. Summary, Security Level, Issue Type, etc.) are fixed and cannot be moved onto a separate tab. However, any other custom fields (excet 'Date' fields) that have been added to the 'View Issue' screen can be moved onto a separate tab. This restriction only applies to the screen associated with the 'View Issue' operation, i.e. system fields can be moved onto other tabs for screens associated with operations such as 'Create Issue', 'Edit Issue', etc.

Navigating between Tabs

To navigate between the Tabs of a Screen, simply click on their linked tab names at the top left of the table of fields on the **Configure Screen** page.

Deleting a Tab

In the table of fields on the **Configure Screen** page:

1. Navigate to the Tab you wish to remove.
2. Click the '**Delete**' tab link. You will now be directed to the **Delete Tab** confirmation page.
3. Click the '**Delete**' button to confirm. You will be returned to the **Configure Screen** Page.

Renaming a Tab

In the table of fields on the **Configure Screen** page:

1. Navigate to the desired Tab.
2. The '**Rename**' text field is located in the top left of the **Configure Screen Tab** form.
3. Enter the new name of the Tab.
4. Click '**Enter**'.

Reordering Tabs

It is possible to configure the horizontal order of Tabs by clicking on the selected tab's arrows to move that Tab left or right (in the direction of the arrow).

Activating a Screen

To make a Screen available to users, you can either:

- Associate the Screen with an **issue operation** (e.g. 'Create Issue'), via a **Screen Scheme** — see 'Associating Screens with Issue Operations', or
- Associate the Screen with a **Workflow Transition** (e.g. 'Resolve Issue') — see 'Configuring Workflow'.

Associating a Screen with an Issue Operation

On this page:

- What is a 'Screen Scheme'?
- Configuring a Screen Scheme
    - Associating an Issue Operation with a Screen
    - Editing an Association
    - Deleting an Association
- Managing Multiple Screen Schemes
    - Adding a Screen Scheme
    - Editing a Screen Scheme's details
    - Deleting a Screen Scheme
    - Copying a Screen Scheme
- Activating a Screen Scheme

What is a 'Screen Scheme'?

A **Screen Scheme** allows you to choose which Screen will be shown to a JIRA user when they perform a particular *issue operation.* There are three issue operations for which you can choose a Screen:

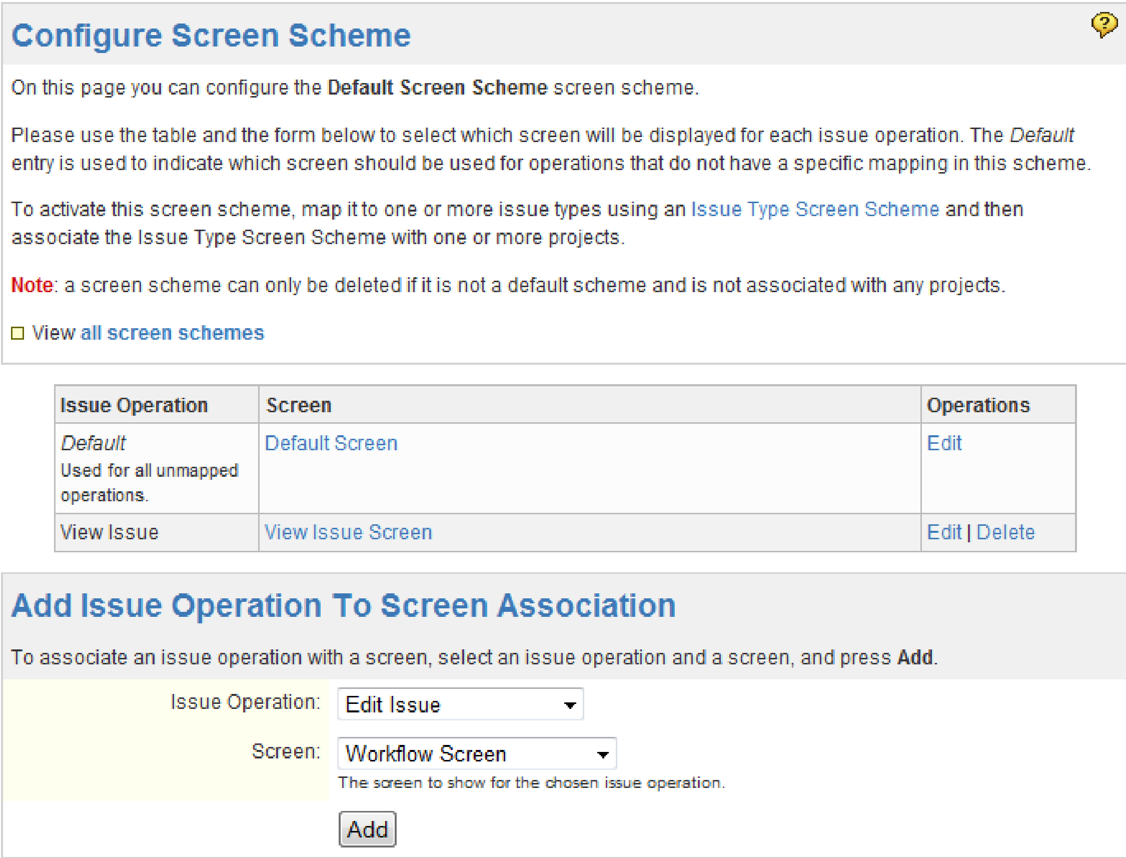
- 'Create Issue' — choose the Screen that is shown when an issue is being created.
- 'Edit Issue' — choose the Screen that is shown when an issue is edited.
- 'View Issue' — choose the Screen that is shown when a user views an issue.

You can specify the same screen for each of these issue operations, or choose different screens for each operation.

Once you have created your Screen Scheme, you will need to activate it by associating it with an Issue Type Screen Scheme.

Configuring a Screen Scheme

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click the '**Issue Fields**' sub-menu on the left hand side if it is not open already, and choose 'Screen Schemes' from the list.
4. The 'View Screen Schemes' page will be displayed (see 'Managing Multiple Screen Schemes' below). Locate the Screen Scheme in which you are interested, and click the '**Screens**' link next to it.
5. You will be brought to the 'Configure Screen Scheme' page:



Associating an Issue Operation with a Screen

1. The '**Add Issue Operation to Screen Association**' is located at the bottom of the 'Configure Screen Scheme' page (see above).
2. Select the Issue Operation with which you wish to associate a Screen.
3. Select the desired Screen.
4. Click the '**Add**' button and the new association will be added to the list of associations.

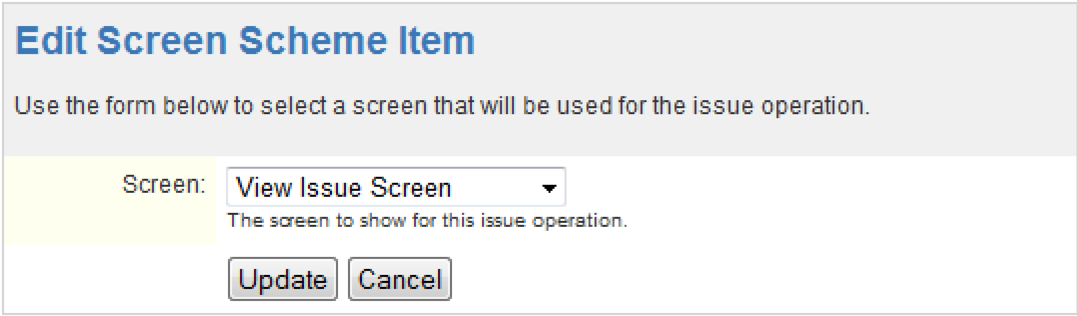
> The 'View Issue' operation only allows you to control the layout of **custom fields** in the middle of the 'View Issue' page. The 'View Issue' page ignores all the non-custom fields on the Screen.

> There can only be one association for an issue operation per Screen Scheme. If all operations have been associated with a Screen, use the 'Edit' link next to each operation to change the Screen it is associated with.

> If an issue operation does not have a specific mapping to a Screen, the screen that is associated with the *Default* entry will be used for that operation. The *Default* entry cannot be deleted from a Screen Scheme. You can use the "Edit" link next to the *Default* entry to change the Screen that is associated with it.

Editing an Association

1. On the 'Configure Screen Scheme' page, click the '**Edit**' link next to the issue operation you wish to edit.
2. You will be brought to the "Edit Screen Scheme Item" page.
3. Select the screen you wish to change the association to.
4. Click the '**Update**' button and you will be returned to the screen scheme page.



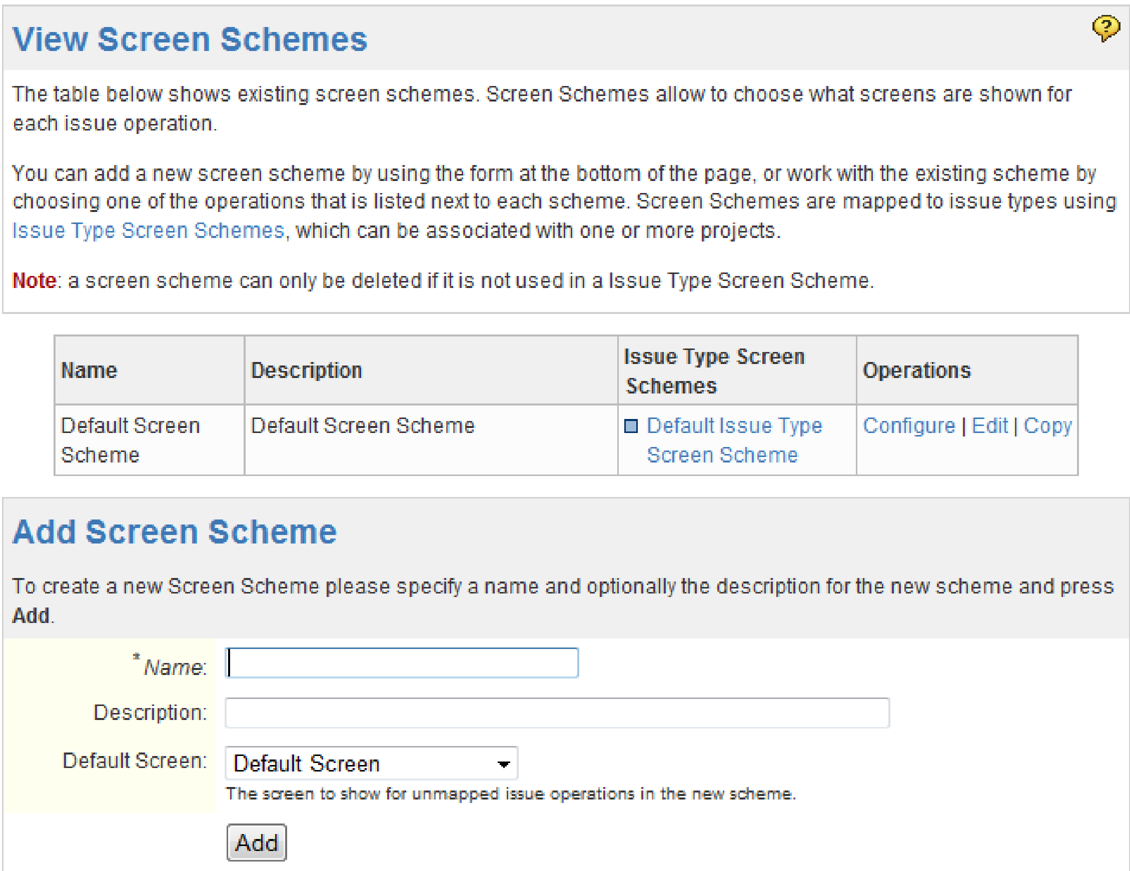
Deleting an Association

1. On the 'Configure Screen Scheme' page, click the '**Delete**' link next to the issue operation you wish to remove.
2. The association will be automatically removed from the list.

Managing Multiple Screen Schemes

Depending on your requirements, you may want to create multiple Screen Schemes, and associate them with different projects/issue types. To manage multiple Screen Schemes:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click the '**Issue Fields**' sub-menu on the left hand side if it is not open already, and choose '**Screen Schemes**' from the list.
4. This will bring you to the 'View Screen Schemes' page.

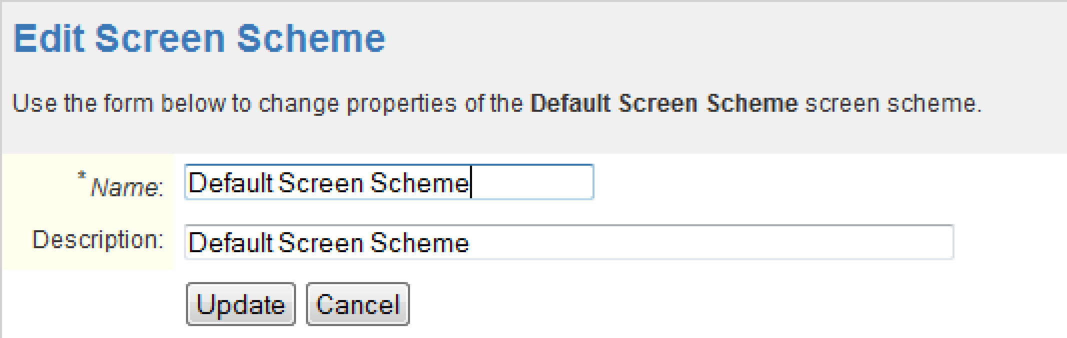


Adding a Screen Scheme

1. The '**Add Screen Scheme**' form is located at the bottom of the 'View Screen Schemes' page.
2. Enter the name of the new field screen.
3. You can optionally add a description of the field screen.
4. Select a default field screen. The default screen will be used for views that do not have an association.
5. Click the '**Add**' button. The screen will automatically update the field screen schemes list with the new field screen scheme.

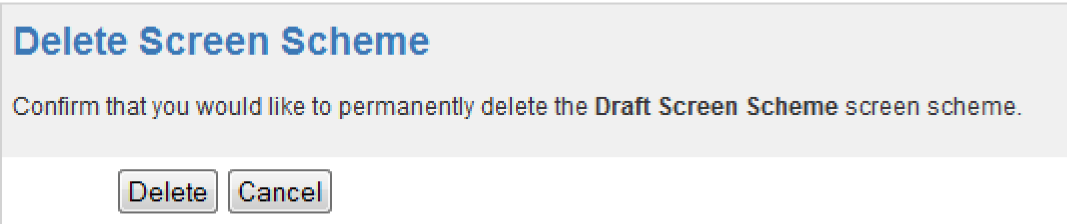
Editing a Screen Scheme's details

1. On the 'View Screen Schemes' page, click the '**Edit**' link next to the selected Screen Scheme.
2. You will now be directed to the "Edit Screen Scheme" page where you can edit the Screen Scheme's name and description and the Screen that is associated with the *Default Entry* of the scheme.
3. Click the '**Update**' button.
4. You will be brought back to the Screen Schemes page with your updates now applied to the Screen Schemes list.



Deleting a Screen Scheme

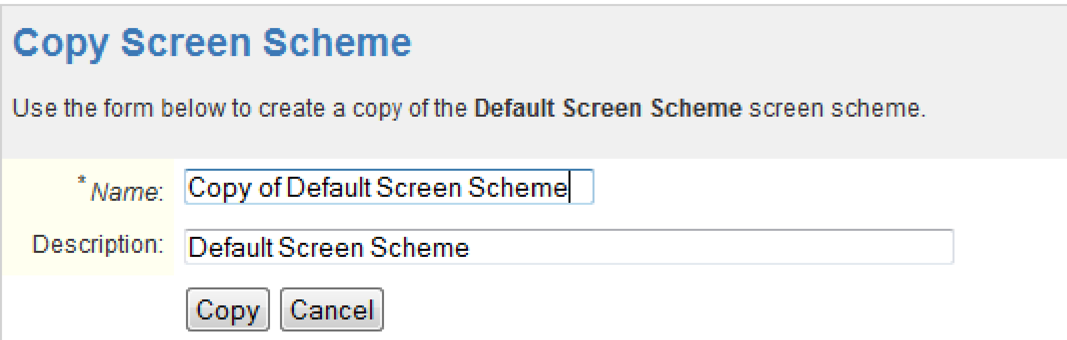
1. On the 'View Screen Schemes' page, click the '**Delete**' link next to the Screen Scheme you wish to delete.
2. Click the '**Delete**' button to confirm this action.
3. You will be brought back to the Screen Schemes page with the Screen Scheme removed from the screen schemes list.



Screen Schemes that are associated with an Issue Type Screen Scheme cannot be deleted.

Copying a Screen Scheme

1. On the 'View Screen Schemes' page, click the '**Copy**' link next to the Screen Screen you wish to copy.
2. You will now be directed to the "Copy Screen Scheme" page.
3. Enter the name and description of the new Screen Scheme.
4. Click the '**Copy**' button.
5. You will be brought back to the Screen Schemes page, and the newly added Screen Scheme will have the same settings as the original Screen Scheme.



Activating a Screen Scheme

To activate a Screen Scheme, you need to associate it with one or more projects and issue types, using Issue Type Screen Schemes. To activate a Screen Scheme,

1. configure an Issue Type Screen Scheme to use the Screen Scheme; then
2. associate the Issue Type Screen Scheme with a project.

For details of both procedures, see 'Associating screens with Issue Types'.

Associating a Screen with an Issue Type

On this page:

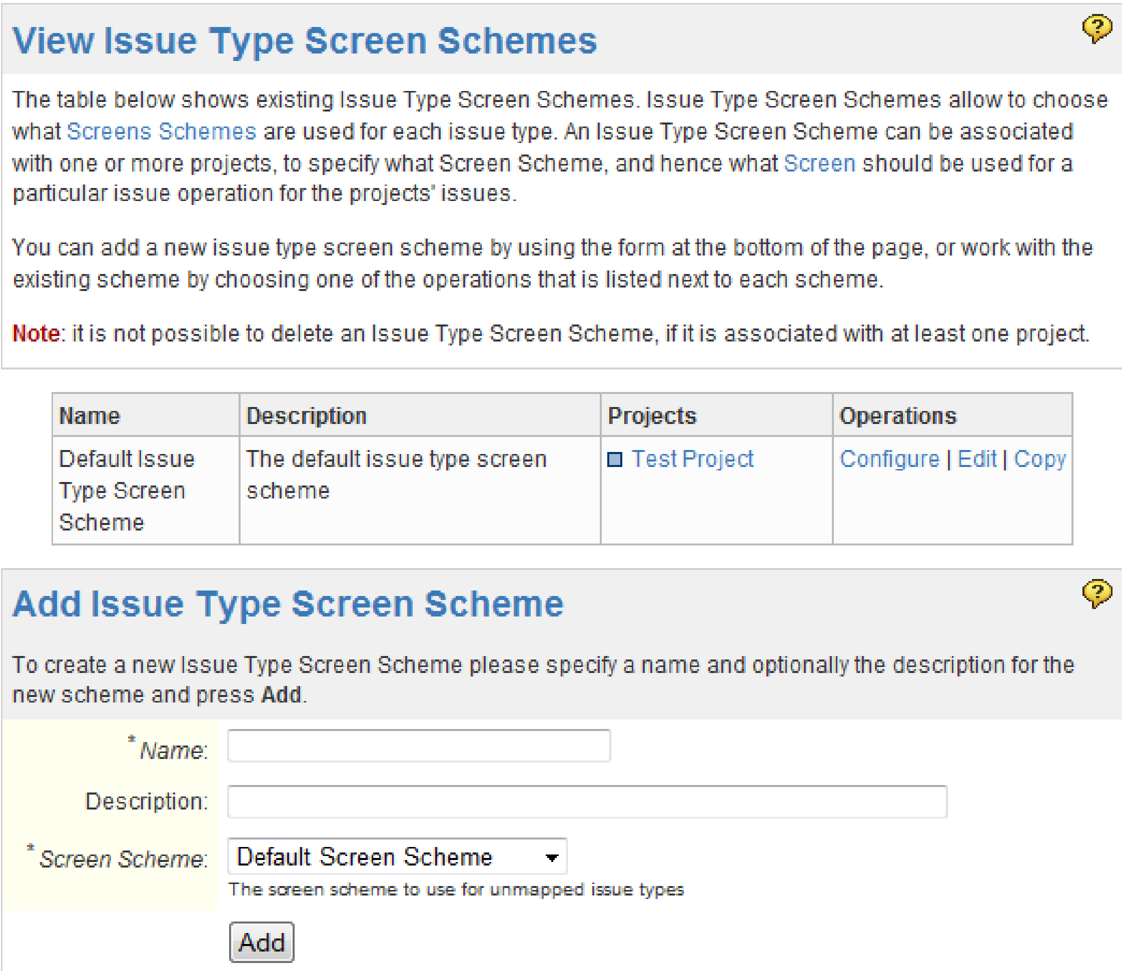
- What is an 'Issue Type Screen Scheme'?
- Adding an Issue Type Screen Scheme
- Editing an Issue Type Screen Scheme
- Deleting an Issue Type Screen Scheme
- Copying an Issue Type Screen Scheme
- Configuring an Issue Type Screen Scheme
    - Associating an Issue Type with a Screen Scheme
    - Editing an Association
    - Deleting an Association
- Associating an Issue Type Screen Scheme with a Project

What is an 'Issue Type Screen Scheme'?

An **Issue Type Screen Scheme** associates a Screen Scheme with issue types, allowing you to specify different Screens for the same operation (e.g. 'Create Issue') in the same project for issues of different types.

Adding an Issue Type Screen Scheme

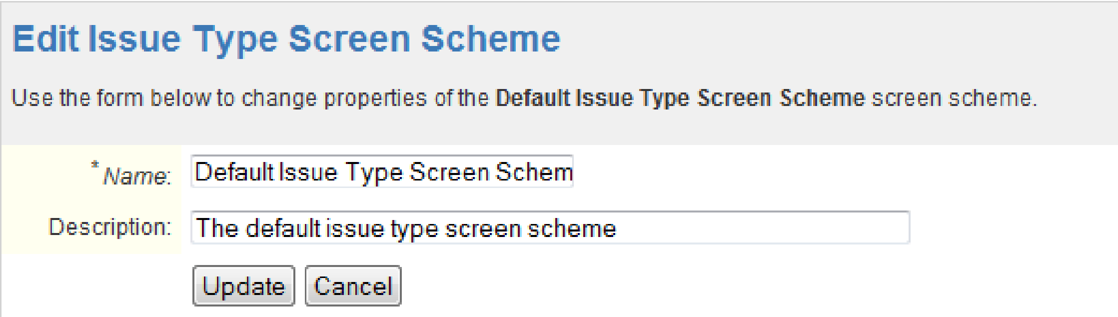
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click the '**Issue Fields**' sub-menu on the left hand side if it is not open already, and choose '**Issue Type Screen Schemes**' from the list.
4. This will bring you to the '**View Issue Type Screen Schemes**' page:



5. The 'Add Issue Type Screen Scheme' form is located at the bottom of the 'View Issue Type Screen Schemes' page.
6. Enter the name for the new scheme.
7. You can optionally add a description.
8. Select a Screen Scheme for the *Default* entry in the new scheme. The Screen Scheme mapped to the *Default* entry will be used for issue types that do not have a specific mapping in the scheme.
9. Click the '**Add**' button. The screen will automatically update the Issue Type Screen Schemes list with the new Issue Type Screen Scheme.

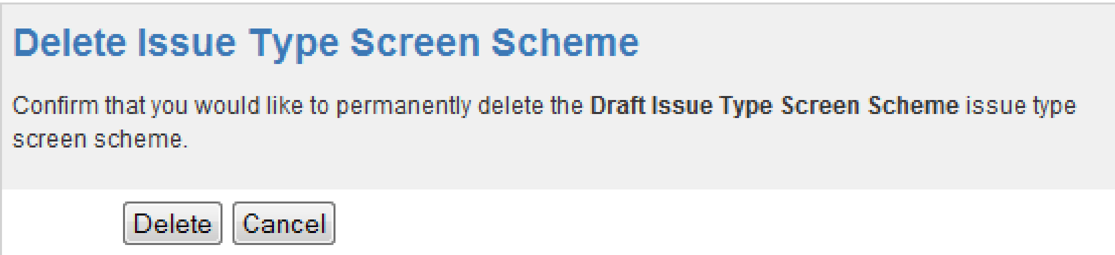
Editing an Issue Type Screen Scheme

1. On the 'View Issue Type Screen Schemes' page, click the '**Edit**' link next to the selected Issue Type Screen Scheme.
2. You will now be directed to the 'Edit Issue Type Screen Scheme' page where you can edit the Issue Type Screen Scheme's name and description as well as the Screen Scheme of the *Default* entry.
3. Click the '**Update**' button.
4. You will be brought back to the 'View Issue Type Screen Schemes' page, with your updates now applied to the Issue Type Screen Schemes list.



Deleting an Issue Type Screen Scheme

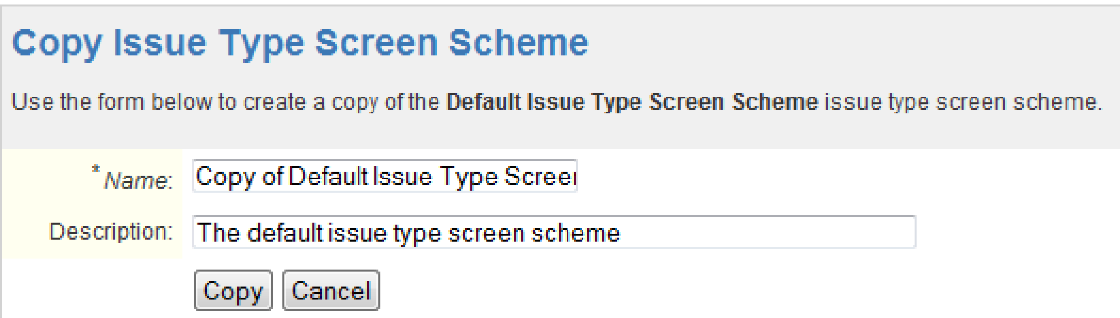
1. On the 'View Issue Type Screen Schemes' page, click the '**Delete**' link next to the Issue Type Screen Scheme you wish to delete.
2. Click the '**Delete**' button to confirm this action.
3. You will be brought back to the 'View Issue Type Screen Schemes' page, with the Issue Type Screen Scheme removed from the Issue Type Screen Schemes list.



Issue Type Screen Schemes that are associated with a project cannot be deleted.

Copying an Issue Type Screen Scheme

1. On the 'View Issue Type Screen Schemes' page, click the '**Copy**' link next to the field screen you wish to copy.
2. You will now be directed to the 'Copy Issue Type Screen Scheme' page.
3. Enter the name and description of the new Issue Type Screen Scheme.
4. Click the '**Copy**' button.
5. You will be brought back to the 'View Issue Type Screen Schemes' page, and the newly added Issue Type Screen Scheme will have the same scheme settings as the original Issue Type Screen Scheme.

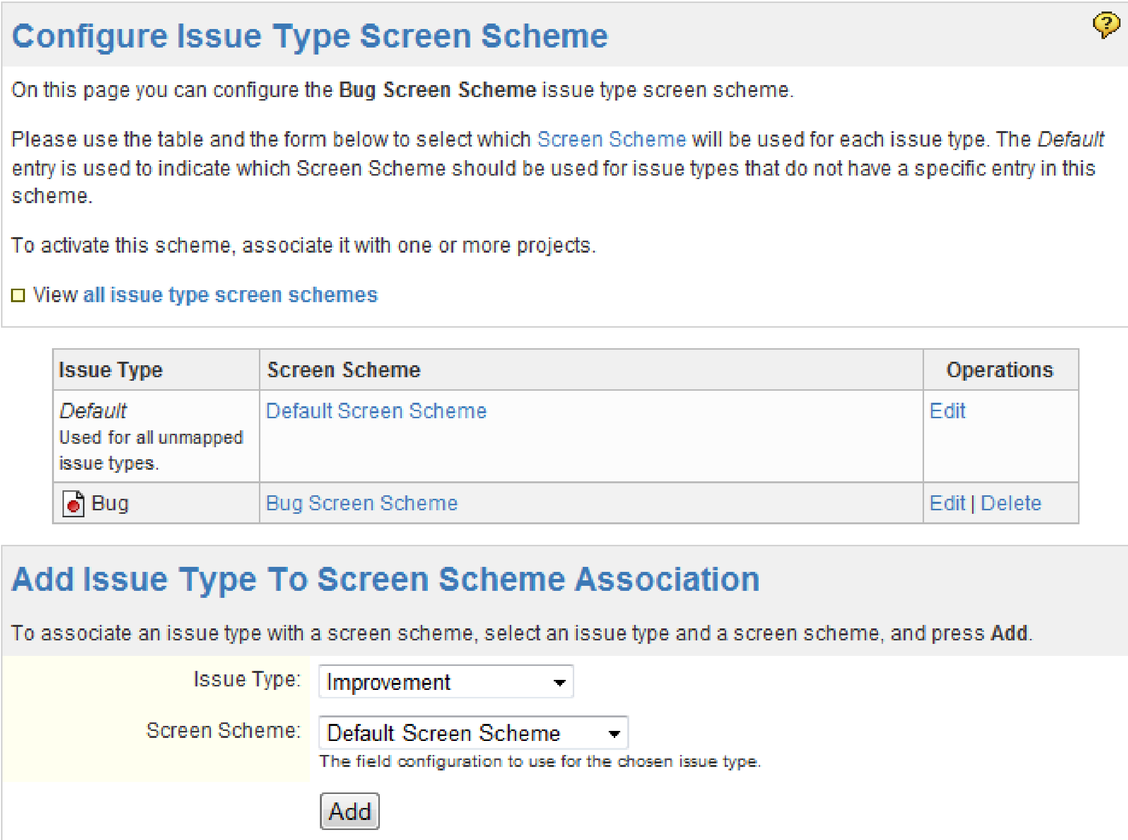


Configuring an Issue Type Screen Scheme

The configuration of an Issue Type Screen Scheme involves associating an issue type(s) with a particular Screen Scheme. For example, associating the 'Bug' issue type with the 'Default Screen Scheme' and then associating the 'Improvement' issue type with the 'Improvement Screen Scheme'.

To configure a given Issue Type Screen Scheme click the '**Configure**' link next to the selected Issue Type Screen Scheme on the 'View

Issue Type Screen Schemes' page. You will then be directed to the 'Configure Issue Type Screen Scheme' page:



Associating an Issue Type with a Screen Scheme

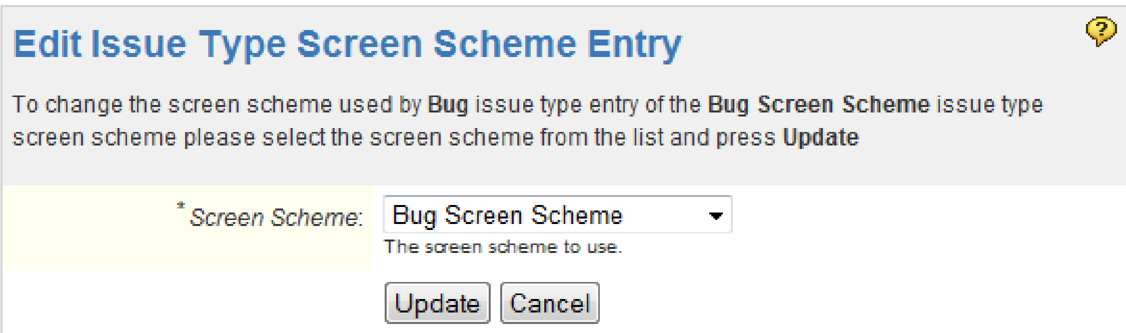
1. The 'Add Issue Type to Screen Scheme Association' is located at the bottom of the 'Configure Issue Type Screen Scheme' page.
2. Select an issue type you wish to associate a Screen Scheme with.
3. Select the desired scheme.
4. Click the '**Add**' button and the new association will be added to the association list above.

> There can only be one association for each issue type. If all issue types have been associated with a Screen Scheme you can use the '**Edit**' link next to each entry to change the Screen Scheme that is associated with it.

> If there is no specific entry for an issue type, the Screen Scheme associated with the *Default* entry will be used.

Editing an Association

1. On the 'Configure Issue Type Screen Scheme' page, click the '**Edit**' link next to the issue type you wish to edit.
2. You will be brought to the 'Edit Issue Type Screen Scheme Entry' page:



3. Select the screen whose association you wish to change.
4. Click the '**Update**' button and you will be returned to the 'Configure Issue Type Screen Scheme' page.

Deleting an Association

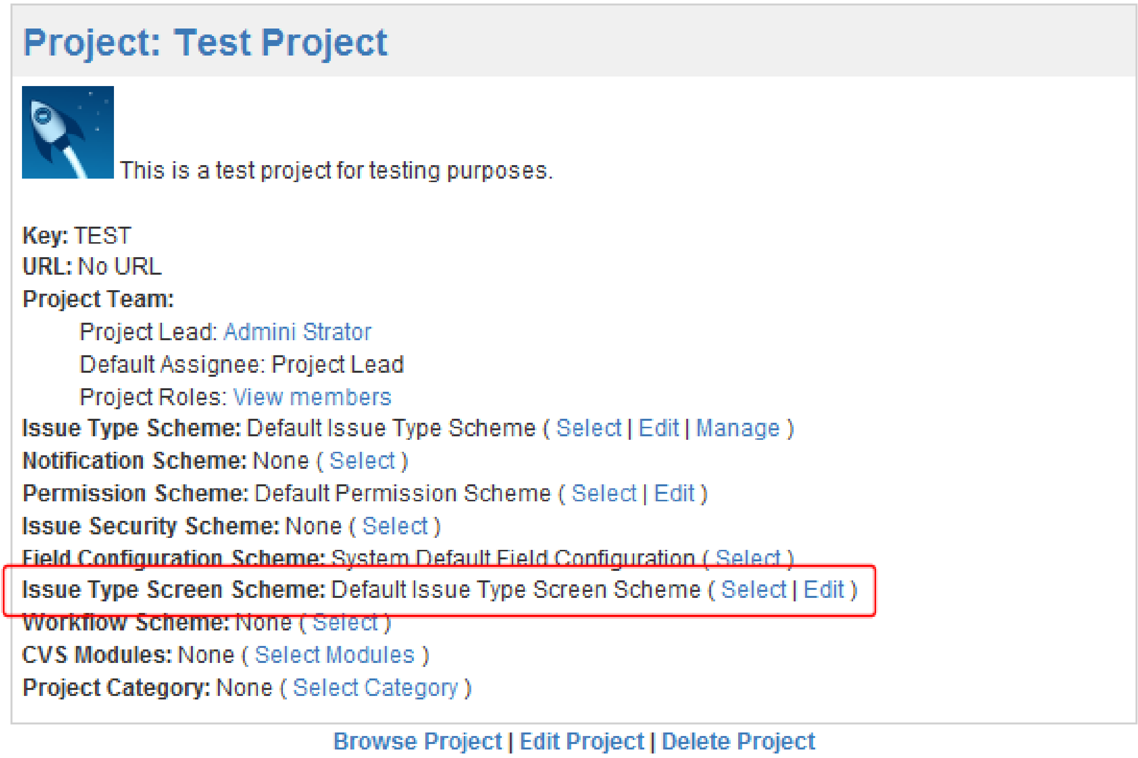
1. On the 'Configure Issue Type Screen Scheme' page, click the '**Delete**' link next to the issue operation you wish to remove.
2. The association will be automatically removed from the table.

> The *Default* entry is used for all issue types that do not have a specific entry in the scheme. It cannot be deleted.

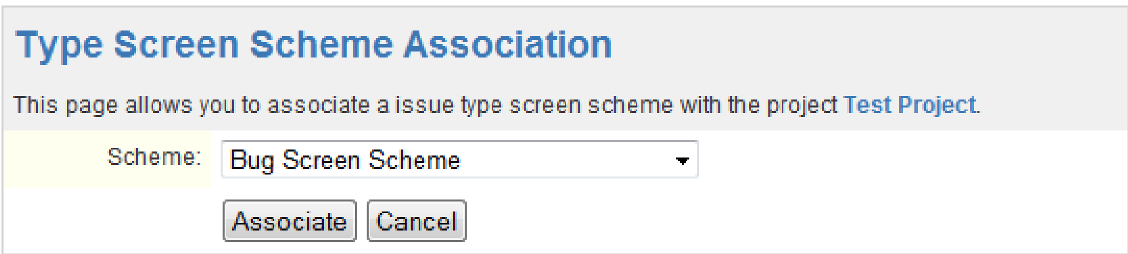
Associating an Issue Type Screen Scheme with a Project

Once you have created and configured an Issue Type Screen Scheme to your desired settings, you can now associate the scheme with a Project. This will apply your chosen Screen Scheme to each issue type within the selected project.

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the 'Administration' page is a list of projects which this user can manage. Select the project of interest.
4. Click the '**Select Scheme**' link beside the 'Issue Type Screen Scheme' caption:



5. Select the screen scheme you wish to associate with this project.



6. Click the '**Associate**' button.

> To control which issue types apply to a project, please see 'Associating Issue Types with Projects'.

Configuring Workflow

On this page:

- About workflow
  - About steps and transitions
  - About 'open' and 'closed' issues
- Creating a workflow
- Editing a workflow

        - Editing an inactive workflow
        - Editing an active workflow
            - Limitations
    - Adding a step
        - Using step properties
    - Deleting a step
    - Adding a transition
        - Using a screen
                - Example: using a screen to set the 'Resolution' field
        - Adding a condition
            - Combining conditions into groups
        - Adding a validator
        - Adding a post function
            - Using a post function to set a field
                - Example: using a post function to set the 'Resolution' field
            - Using a post function to send a notification
                - Example: using a post function to fire the 'Generic Event'
        - Working with transition properties
            - Customising the appearance and order of workflow transitions on the 'View Issue' page
                - Changing the number of transition buttons
                - Changing the order of transition buttons and 'Workflow' menu items
    - Using 'common transitions'
    - Using XML to create a workflow
        - Copying a workflow between systems

See also:

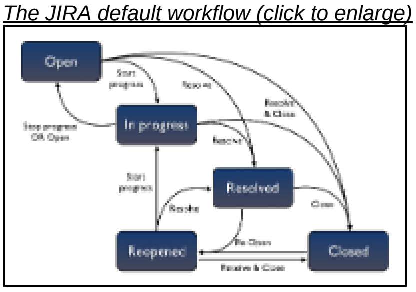
- Activating Workflow
- Adding a Custom Event

About workflow

A JIRA *workflow* is the set of *steps* and *transitions* an issue goes through during its lifecycle. Workflows typically represent business processes.

JIRA ships with a default workflow. The default workflow cannot be edited, but you can customise the issue lifecycle by creating additional workflows. Each workflow can be associated with particular projects and (optionally) particular issue type(s).

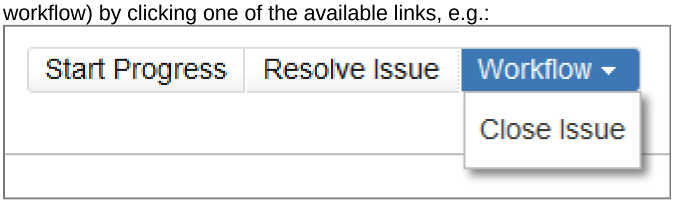
The JIRA default workflow (click to enlarge)



About steps and transitions

A workflow consists of **steps** and **transitions**:

- A **step** represents a stage in a workflow for an issue. An issue can exist in only one step at any point in time. Each workflow step corresponds to (and is usually named after) a 'linked' status. When an issue is moved into a particular step, its **'Status'** field is updated to the value of the step's 'linked' status.
  When defining a step, you can optionally specify **properties** — these allow you to make an issue uneditable while it is in this step.
- A **transition** is a link between two steps. A transition allows an issue to move from one step to another step. For an issue to be able to progress from one particular step to another, a transition must exist that links those two steps. Note that a transition is a *one-way* link, so if an issue needs to move back and forth between two steps, two transitions need to be created. The available workflow transitions for an issue are listed on the issue's **'View Issue'** page. A user can execute a transition (i.e. move the issue through workflow) by clicking one of the available links, e.g.:

  When defining a transition, you can optionally specify:
    - A **screen** to be displayed to the user — this is useful if you need the user to provide input before completing the transition.
    - **Conditions** — these control who can perform a transition (i.e. who can see the transition link on the 'View Issue' page).
    - **Validators** — these check that any user-supplied input is valid before performing the transition.
    - **Post Functions** — these perform particular actions after the transition is complete, e.g.:
        - Assign the issue to a particular user.
        - Send an email notification.

- Update a field in the issue.
In the diagram of the default workflow, the five boxes represent steps/statuses **('OPEN', 'IN PROGRESS', 'CLOSED',** etc) and the arrows represent transitions.

About 'open' and 'closed' issues

Within JIRA (e.g. in the *'Assigned To Me'*portlet and other gadgets), an issue is determined to be 'open' or 'closed' based on the value of its **'Resolution'** field — not its **'Status'** field.

- An issue is determined to be 'open' if its **'Resolution'** field has not been set.
- An issue is determined to be 'closed' if its **'Resolution'** field has a value (e.g. **'FIXED', 'CANNOT REPRODUCE').**
This is true regardless of the current value of the issue's **'Status'** field **('OPEN', 'IN PROGRESS',** etc).

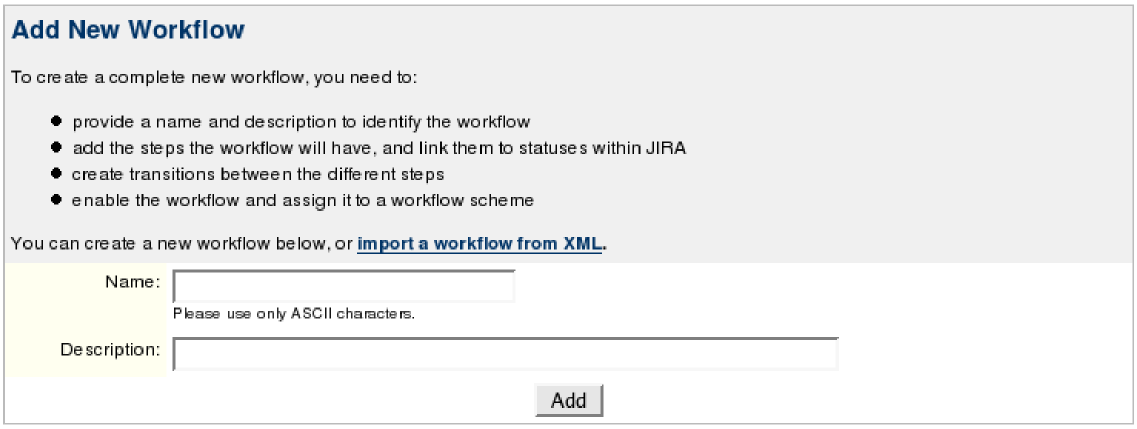
So if you need your workflow to force an issue to be 'open' or 'closed', you will need to set the issue's **'Resolution'** field during a transition. There are two ways to do this:

- Set the **'Resolution'** field automatically via a post function.
- Prompt the user to choose a **'Resolution'** via a screen.

Creating a workflow

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed, listing all the workflows that are currently defined in your JIRA system:

Name	Description	Active?	Schemes	Steps	Operation
jira (Read-only System Workflow)	The default JIRA workflow.	Active	Used by projects with no associated workflow shceme and by workflow schemes with unassigned issue types.	5	Steps | XML | Copy
Copy of jira	Workflow for customisation.	Inactive		5	Steps | XML | Copy | Delete



5. To create a new workflow in JIRA, either:
   - **Create a 'blank workflow** by using the **'Add New Workflow'** form at the bottom of the page:
     a. In the **'Name'** field, type a name (usually 2-3 words) to identify your new workflow.
     b. *(Optional)* In the **'Description'** field, type a detailed description of your new workflow.
     c. Click the **'Add'** button.Your new workflow will contain one step, called **'Open',** which has an incoming transition called **'Create'.**
   - **Copy an existing workflow** (this is useful if you already have a workflow that is similar to what you need) by clicking the **'Copy'** link next to an existing workflow:
     a. In the **'Name'** field, type a name (usually 2-3 words) to identify your new workflow.
     b. *(Optional)* In the **'Description'** field, type a detailed description of your new workflow.
     c. Click the **'Copy'** button.Your new workflow will contain the same steps and transitions as the workflow you copied.

> If you are copying the default JIRA workflow and wish to rename the transitions, you will need to delete the **'jira.i18n.title'** and **'jira.i18n.description'** properties from all of the transitions. Otherwise, the default names will persist. Read more about transition properties.

6. Once you have created your new workflow you may want to customise it by adding or editing steps and transitions (see below) — especially if you have created a blank workflow.
7. When you have finished customising your new workflow, see *Activating Workflow* for how to use it.

Editing a workflow

Editing a workflow means that you are modifying the steps and transitions that make up a workflow. Read more about modifying steps and transitions on this page.

The process for editing a workflow differs depending on whether you are editing an **inactive workflow** or an **active workflow**. Restrictions are placed on the modifications you can make to an active workflow, due to the impact the changes will have on projects and/or issue types that the workflow is applied to.

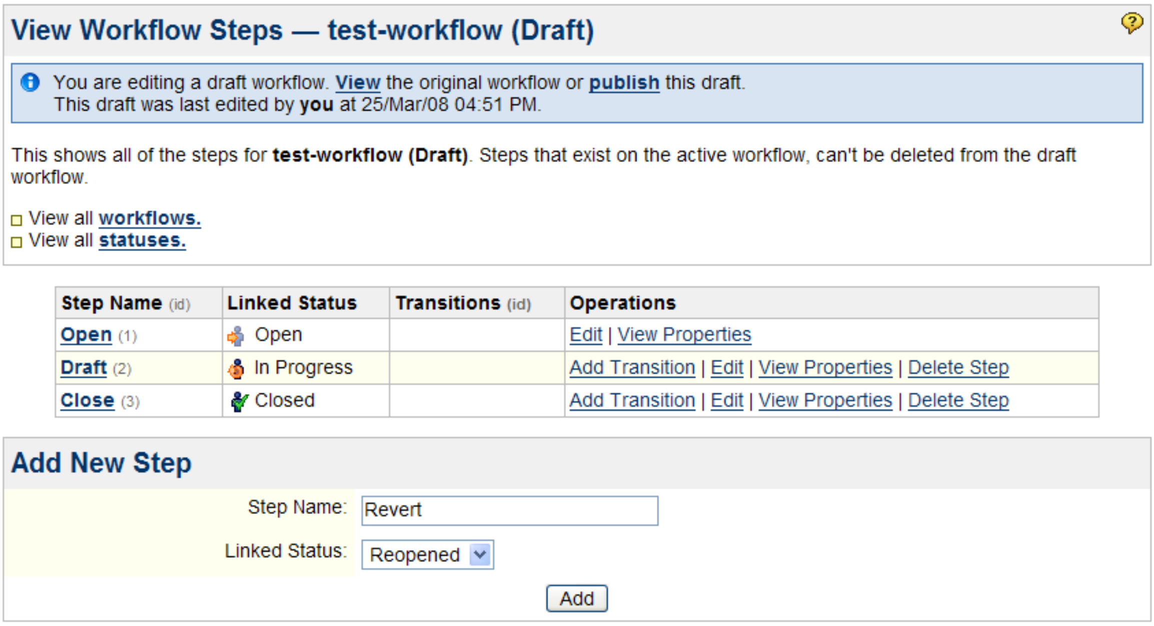
Editing an inactive workflow

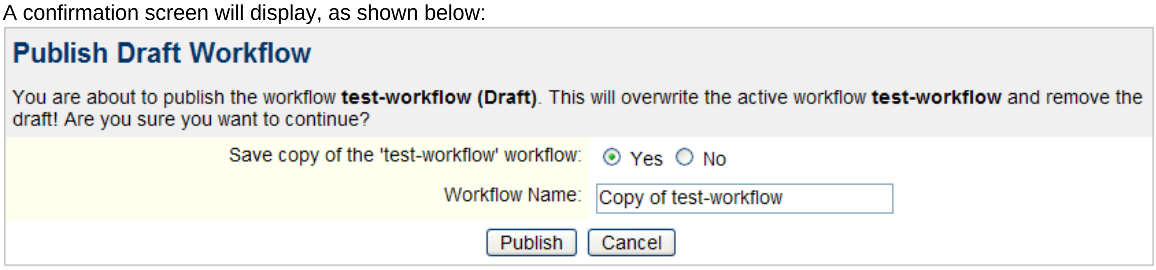
An inactive workflow is a workflow that is not currently being used by any projects . Because there are no issues currently transitioning through an inactive workflow, you can simply edit the workflow's steps and transitions as described below.

Editing an active workflow

To edit an active workflow, you will need to create a 'draft'. You will be able to make quick edits to your live draft with the benefit of real-time validations. Once you publish your changes, you also have the option of saving your old workflow as an inactive backup.

To edit an active workflow:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow that you wish to edit.
5. The **'View Workflow Steps'** page will be displayed. Click the '**Create** a draft workflow' link in the information message displayed at the top of the screen.
6. The **'View Workflow Steps'** page will be reloaded, as shown below. You will now be able to edit a draft of the workflow as described in the sections below. Any changes that you make to this draft will not affect the active workflow until you publish your draft.


7. When you have completed your changes, click the **'publish this draft'** link in the information message displayed at the top of the screen.
8. A confirmation screen will display, as shown below:


Select whether you wish to save the original workflow as an inactive copy. If you choose to retain the original workflow, enter a name for the inactive copy. Click **'Publish'** to publish your draft (i.e. commit your changes to the active workflow).

Limitations

Please note that the following limitations apply when editing an active workflow (i.e. draft):

- Existing workflow steps cannot be deleted.

- The associated Status for an existing step cannot be edited.
- If an existing step has no outgoing transitions, it can't have any new outgoing transitions added.
- Step IDs for existing steps cannot be changed.

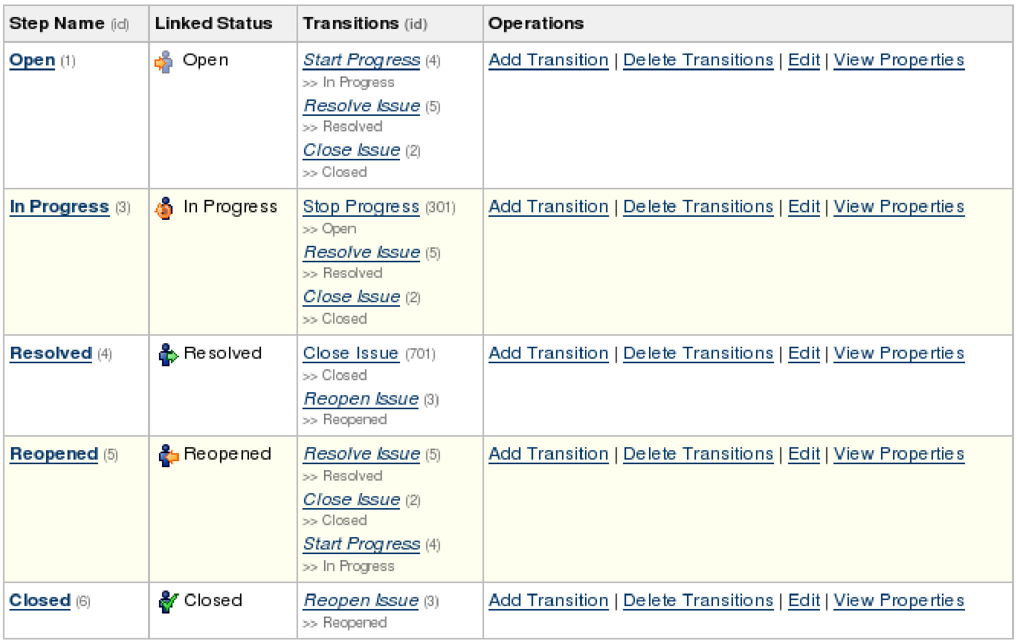
If you wish to make any of the modifications listed above, then you will need to copy the workflow (see *'Creating a Workflow'* above), modify the copy and then activate it. Please note, this method will be **significantly slower than editing an active workflow,** particularly for large instances of JIRA.

Adding a step

Note: before adding steps after "Resolved", please note that some gadgets (e.g. Assigned To Me, In Progress) will not display data for issues in steps after "Resolved".

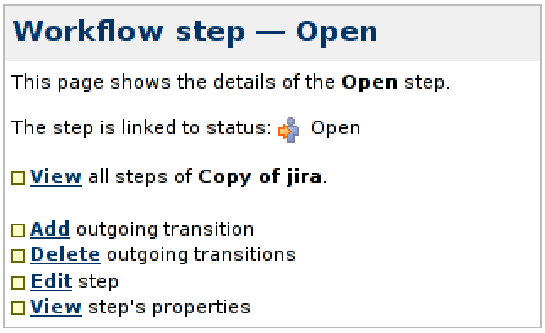
To add a new step to a workflow:

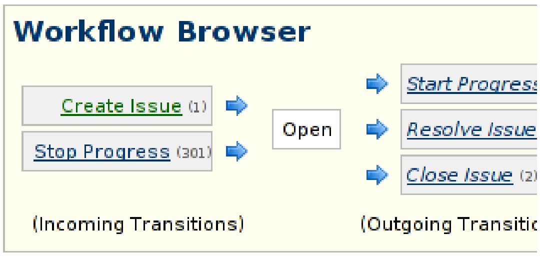
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow to which you wish to add a step.
5. The **'View Workflow Steps'** page will be displayed, showing the steps that make up the workflow, and each step's **Linked Status** and **Outgoing Transitions**. The **'Add New Step'** form appears below the list of steps. (Note: this form will only be shown if the workflow is inactive or you are editing an active workflow.)



Step Name (id)	Linked Status	Transitions (id)	Operations
Open (1)	Open	Start Progress (4) >> In Progress Resolve Issue (5) >> Resolved Close Issue (2) >> Closed	Add Transition | Delete Transitions | Edit | View Properties
In Progress (3)	In Progress	Stop Progress (301) >> Open Resolve Issue (5) >> Resolved Close Issue (2) >> Closed	Add Transition | Delete Transitions | Edit | View Properties
Resolved (4)	Resolved	Close Issue (701) >> Closed Reopen Issue (3) >> Reopened	Add Transition | Delete Transitions | Edit | View Properties
Reopened (5)	Reopened	Resolve Issue (5) >> Resolved Close Issue (2) >> Closed Start Progress (4) >> In Progress	Add Transition | Delete Transitions | Edit | View Properties
Closed (6)	Closed	Reopen Issue (3) >> Reopened	Add Transition | Delete Transitions | Edit | View Properties

6. In the **'Step Name'** field, type a short name for the step. (Note: it is often useful to use the name of the corresponding status.)
7. In the **'Linked Status'** field, select the status that corresponds to this step. Note that each status can only correspond to one step in each workflow, so if all the statuses are already linked to steps in this workflow, you may need to define a new status.
8. Click the **'Add'** button. The **'View Workflow Steps'** page will now show your new step in the list.
9. If you wish to view the details of your new step, click the step name. The **'View Workflow Step'** page will be displayed, showing the step's:
    - **Linked Status ('Open'** in the screenshot below).
    - **Incoming Transitions** — that is, transitions whose **Destination Step** is this step.
        - To allow issues to move into this step, there must be at least one incoming transition.
    - **Outgoing Transitions** — that is, transitions whose **Originating Step** is this step.
        - To allow issues to move out of this step, there must be at least one outgoing transition.





10. From this page you can:
    - Edit the step's **Name** or **Linked Status,** by clicking the **'Edit'** link.
    - View and edit the step's **Properties** (see *'Using step properties'* below).
    - View and edit any of the step's **Incoming Transitions** or **Outgoing Transitions,** by clicking the name of a transition. See *'Adding a condition', 'Adding a validator'* and *'Adding a post function'* (below).
    - Add an **Outgoing Transition** to the step (see *'Adding a transition'* below).
    - Delete an **Outgoing Transition.**

Using step properties

You can use step properties to prevent issues from being edited when they are in a particular workflow step(s). For example, in the default JIRA workflow, issues in the **'Closed'** step/status cannot be edited, even by users who have the '**Edit Issue**' permission. Note that issues which cannot be edited cannot be updated using Bulk Edit either.

To stop issues from being editable in a particular step, set the **'jira.issue.editable'** property of the step to **'false'** as follows:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown in *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow whose step you wish to make uneditable.
5. The **'View Workflow Steps'** page will be displayed, showing the steps that make up the workflow.
6. Click the **'View Properties'** link that corresponds to the relevant step.
7. The **'View Workflow Step Properties'** page will be displayed, showing the step's existing properties (if any). The **'Add New Property'** form appears below the list of steps. (Note: this form will only be shown if the workflow is inactive or you are editing an active workflow.)
8. In the **'Property Key'** field, type: `jira.issue.editable` .
9. In the **'Property Value'** field, type: `false` .
10. Click the **'Add'** button.

Deleting a step

Note: a step can only be deleted if it has no incoming transitions. Also note that you cannot delete a step from an active workflow — see Limitations for a workaround.

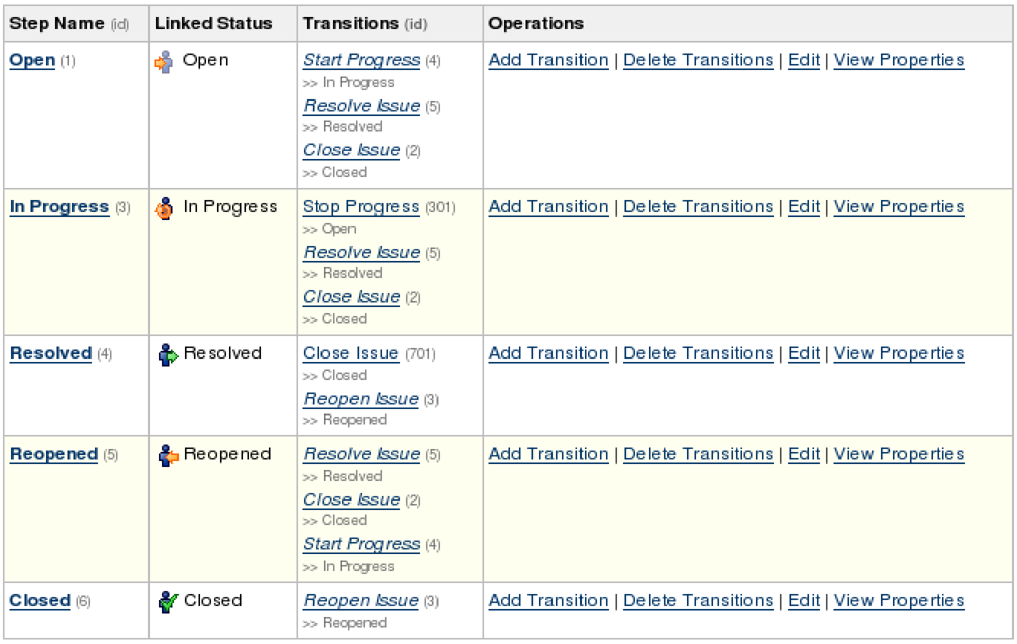
To delete a step from a workflow:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow from which you wish to delete a step.
5. The **'View Workflow Steps'** page will be displayed.
6. Click the **'Delete'** link that corresponds to the relevant step. (Note: this link will only be shown if the step has no incoming transitions. A workflow step cannot be deleted if it is the destination of a transition.)

Adding a transition

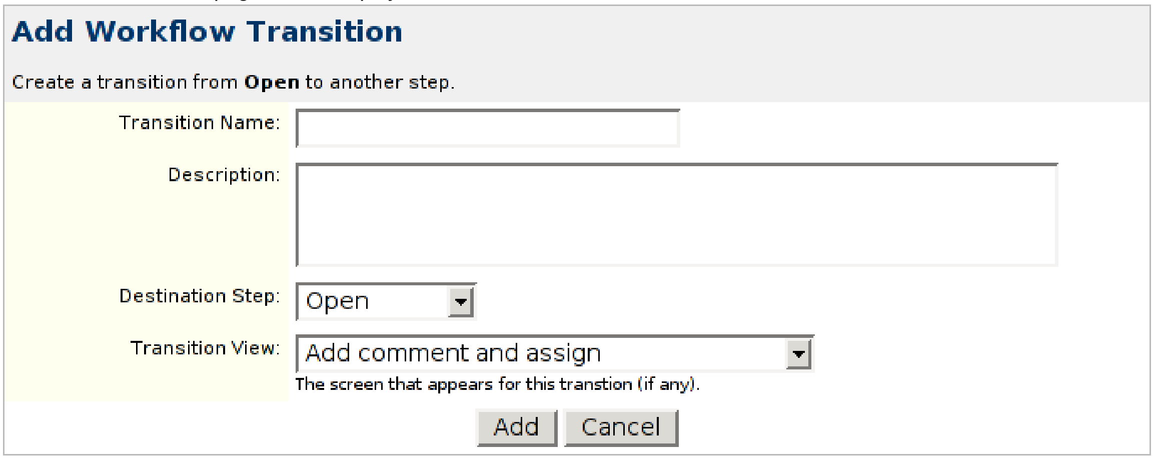
To add a new transition to a workflow:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow to which you wish to add a transition.
5. The **'View Workflow Steps'** page will be displayed, showing the steps that make up the workflow, and each step's **Linked Status** and **Outgoing Transitions:**



Step Name (id)	Linked Status	Transitions (id)	Operations
Open (1)	Open	Start Progress (4) >> In Progress Resolve Issue (5) >> Resolved Close Issue (2) >> Closed	Add Transition | Delete Transitions | Edit | View Properties
In Progress (3)	In Progress	Stop Progress (301) >> Open Resolve Issue (5) >> Resolved Close Issue (2) >> Closed	Add Transition | Delete Transitions | Edit | View Properties
Resolved (4)	Resolved	Close Issue (701) >> Closed Reopen Issue (3) >> Reopened	Add Transition | Delete Transitions | Edit | View Properties
Reopened (5)	Reopened	Resolve Issue (5) >> Resolved Close Issue (2) >> Closed Start Progress (4) >> In Progress	Add Transition | Delete Transitions | Edit | View Properties
Closed (6)	Closed	Reopen Issue (3) >> Reopened	Add Transition | Delete Transitions | Edit | View Properties

6. Identify the step from which your new transition will originate, and click the **'Add Transition'** link next to the step. The **'Add Workflow Transition'** page will be displayed:



7. In the **'Transition Name'** field, type a short name for the transition. (Note: this name will be shown to users as the transition link in the list of **'Available Workflow Actions'** on the ' **View Issue** ' page.)
8. *(Optional)* In the **'Description'** field, type a short description of the purpose of the transition.
9. In the **'Destination Step'** field, choose the step to which issues will move when this transition is executed.
10. In the **'Transition View'** field, choose either:
    - **'No view for transition'** — choose this if you don't need to prompt the user for input before the transition is executed (i.e. the transition will occur instantly when the user clicks the transition link).
    - The name of a screen that will be shown to users, asking for input before the transition is executed. You can choose one of JIRA's default screens (note: many of these are used in the default workflow and are named after its transitions, e.g. **'Start Progress'** and **'Resolve Issue'),** or any other screen you have created. If no existing screen is suitable, you may want to create a new screen.

Using a screen

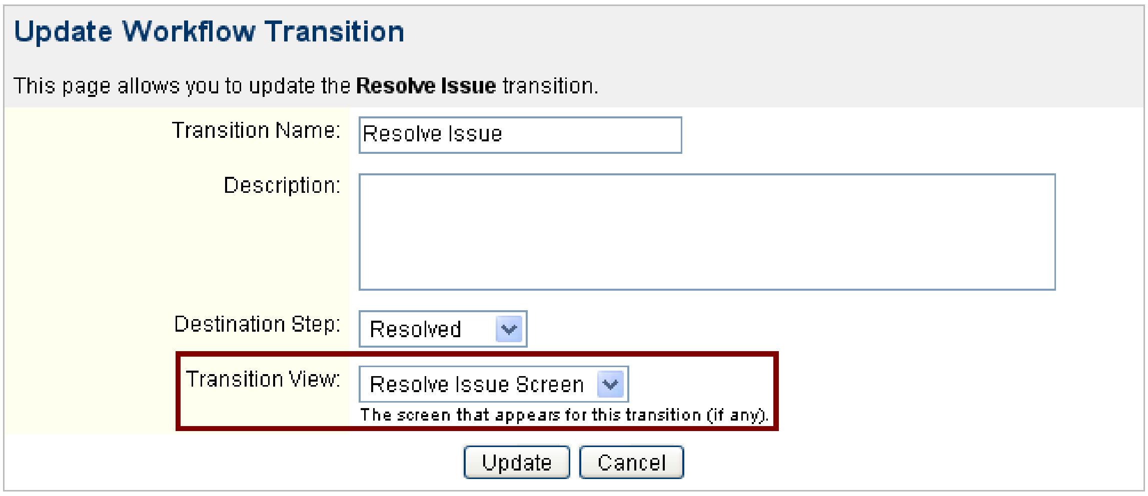
You can use a screen to gather input from a user before a particular transition is executed.

Example: using a screen to set the 'Resolution' field

For a particular step in a workflow, you might need to create a transition that will move the issue to a 'closed' status (e.g. **'CLOSED', 'RESOLVED',** etc) - see 'open' and 'closed' issues. As part of this transition, you might need the user to set the **'Resolution'** field. To do this:

1. Create a screen, e.g. named ' `Resolve Issue Screen` ', that contains the **'Resolution'** field (and any other fields you want to

display).
2. Create/edit your transition, and choose '`Resolve Issue Screen`' in the **'Transition View'** field:



Adding a condition

Conditions control who can perform a transition, and under what circumstances. If a condition fails, the user won't see the transition link on the *View Issue* page.

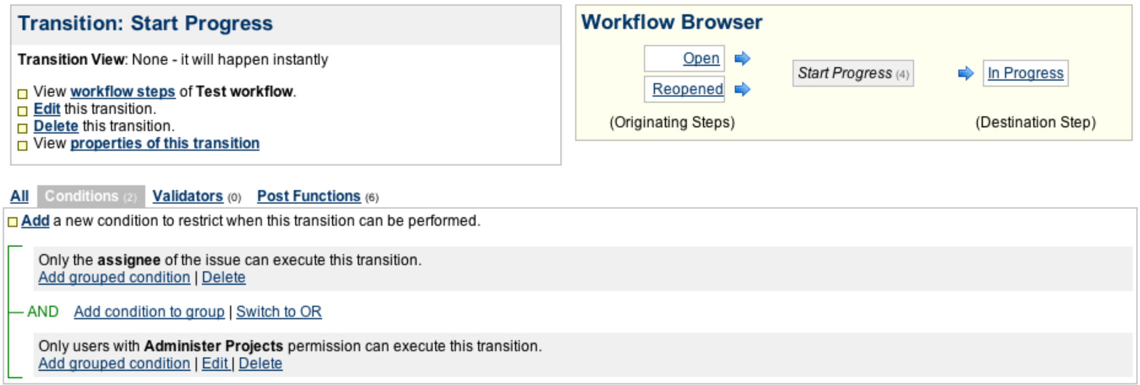
JIRA ships with the following built-in conditions, which are available for you to add to transitions:

Condition	Explanation
Only Assignee Condition	Only allow the issue's current assignee to execute the transition.
Only Reporter Condition	Only allow the issue's reporter to execute the transition.
Permission Condition	Only allow users with a given permission to execute the transition.
Sub-Task Blocking Condition	Block the parent issue transition depending on sub-task status.
User Is In Group	Only allow users in a given group to execute the transition.
User Is In Group Custom Field	Only allow users in a given custom field (of type "Group") to execute a transition.
User Is In Project Role	Only allow users in a given project role to execute a transition.

(You can also create your own conditions via the plugin system. See the *Workflow Plugin Guide* for details.)

To add a condition to a transition:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow to which you wish to add a condition.
5. The **'View Workflow Steps'** page will be displayed, showing the steps that make up the workflow, and each step's **Linked Status** and **Outgoing Transitions.**
6. Click the name of the transition to which you wish to add a condition. The **'View Workflow Transition'** page will be displayed:



7. Click the **'Conditions'** tab. A list of the transition's existing conditions will be displayed.
8. Click the **'Add'** link. A list of all available conditions will be displayed.
9. Select a condition from the list and click the **'Add'** button.

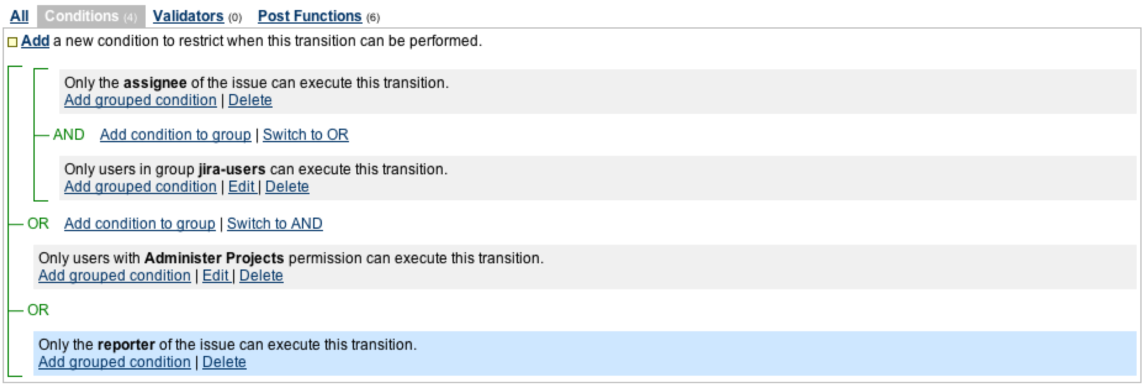
10. If the condition requires one or more configuration parameters (e.g. the name of a group or project role), the **'Add Parameters To Condition'** page will be presented. Enter your criteria and click the **'Add'** button.
11. The **'Conditions'** tab will be displayed, showing your new condition at the bottom of the list of conditions.Note: from here you can:
    - Click the **'Edit'** link next to the condition's name to edit its configuration parameters (if there are any).
    - Click the **'Delete'** link next to the condition's name to remove the condition
    - Combine your conditions into 'AND'/'OR' groups (see below).

Combining conditions into groups

You can construct complex conditions by combining individual conditions together to form 'condition groups', using a boolean *AND* or *OR.* For example, the following condition group could be constructed:

- Only the assignee of this issue can execute this transition
- **AND**
- Only users in group **jira-users** can execute this transition
  The condition will pass if the user is the assignee of the issue **AND** the user is in the group **jira-users.**

Multiple condition groups can be combined to construct even more complex conditions. Each pair of condition groups can be combined using a boolean **AND** or **OR.** Depending on the structure of the overall condition and its groups, the condition will pass once one or all condition groups have been satisified, e.g:



Adding a validator

Validators check that any user-supplied input is valid before performing the transition. For example, a validator can be used to ensure that the comment entered by a user on the transition's screen meets a certain criteria. If a validator 'fails', the Post Functions of the transition will not be executed and the issue will not progress to the destination step of the transition.

JIRA ships with a number of default validators, which are available for you to add to your transitions. You can also create your own validators via the plugin system.

> **What is the difference between conditions and validators?** Conditions are used to determine whether a transition is 'allowed' to be executed. Conditions cannot validate input parameters that are provided by the user on the transition's screen, since if the condition fails the user is not allowed to start executing the transition and so will not see the transition's screen. Validators have access to the input that has been gathered from the user via the transition's screen, and thus can validate that input.

To add a validator to a transition:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow to which you wish to add a condition.
5. The **'View Workflow Steps'** page will be displayed, showing the steps that make up the workflow, and each step's **Linked Status** and **Outgoing Transitions.**
6. Click the name of the transition to which you wish to add a validator. The **'View Workflow Transition'** page will be displayed.
7. Click the **'Validators'** tab.
8. Click the **'Add'** link. A list of all available validators will be displayed.
9. Select a validator from the list and click the **'Add'** button.
10. If the validator requires one or more configuration parameters (e.g. the name of a group or project role), the **'Add Parameters To Validator'** page will be presented. Enter your criteria and click the **'Add'** button.
11. The **'Validators'** tab will be displayed, showing your new validator at the bottom of the list of validators.Note: from here you can:
    - Click the **'Edit'** link next to the validator's name to edit its configuration parameters (if there are any).
    - Click the **'Delete'** link next to the validator's name to remove the validator.

Adding a post function

Post functions carry out some processing immediately after a transition is executed (hence the name *post* function), such as updating an issue's fields, generating change history for an issue, adding a comment to an issue, generating an event (e.g. an email notification).

The JIRA default workflow includes a number of default transitions. Additionally, JIRA ships with the following 'essential' post functions, which are automatically added to every newly-created transition:

Essential post function
Set issue status to the linked status of the destination workflow step.
Add a comment to an issue if one is entered during a transition.
Update change history for an issue and store the issue in the database.
Re-index an issue to keep indexes in sync with the database.
Fire an event that can be processed by the listeners.

The 'essential' post functions cannot be deleted, or reordered relative to each other, as this could compromise other functionality. However, you can insert other post functions between them.

JIRA ships with four built-in post functions which you can optionally add to your transitions:

Optional post function	Explanation
Assign to Current User	Assigns the issue to the user who is executing the transition. (Note: This post function will be ignored unless the user has the *'Assignable User'*permission. You may want to use a condition to ensure that the logged-in user has this permission before executing the transition.)
Assign to Lead Developer	Assigns the issue to the component lead (if one exists) or project lead.
Assign to Reporter	Assigns the issue to the user who created the issue.
Update Issue Field	Updates one of the issue's fields to a given value. Updateable fields are: • **'Assignee'** • **'Description'** • **'Environment'** • **'Priority'** • **'Resolution'** • **'Summary'** • **'Original Estimate'** • **'Remaining Estimate'** Note that this post function cannot update custom fields.

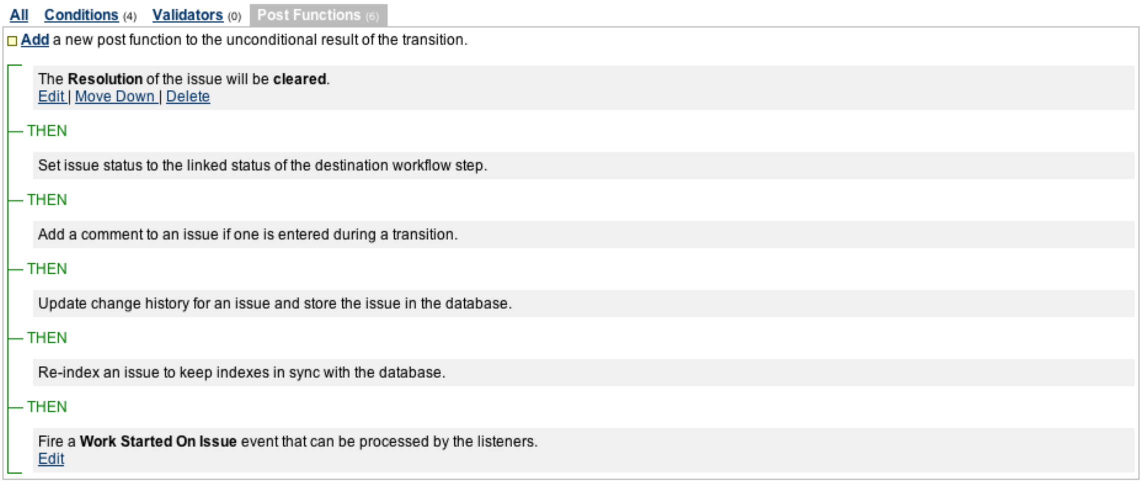
(You can also create your own post functions via the plugin system. See the *Workflow Plugin Guide* for details.)

Note that the four optional post functions must be positioned *before* the **'Update change history for an issue and store the issue in the database'** post function, except when used in the **'Create'** transition.

> **A note regarding the 'Create' transition:**
> Sometimes it is useful to perform particular processing (e.g. set a particular field) when an issue is first created. You can do this by adding post functions to the workflow's 'initial transition', which is executed whenever a user creates an issue, and puts the newly-created issue into the workflow's 'initial step'. The 'initial step' is simply the first step in a workflow; every workflow has one, and only one, initial step (called **'Open'** by default, i.e. if you created a blank workflow or copied the [default workflow]). The 'initial transition' (called **'Create'** by default) is the first incoming transition of the 'initial step'.
> When adding one of the optional post functions to the workflow's **'Create'** transition (e.g. you might use the **'Update Issue Field'** transition to set the **'Assignee'** field to a particular user when an issue is created), note that you need to put it *before* the **'Create'** transition's default **'Creates the issue originally'** post function.
> **Special case:**
> If you need to set the **'Resolution'** field when creating an issue, put the **'Update Issue Field'** post function *after* the default **'Creates the issue originally'** post function, and use the **'Issue Store'** post function after that. Note that use of the **'Issue Store** post function (which is available only for the **'Create'** transition) should be kept to a minimum, as it does not generate change history and is incapable of persisting fields that have a one-to-many relationship with the issue (e.g. **'Version'** or **'Component').** However, for setting the **'Resolution'** field during issue creation, this post function is useful.

To add a post function to a transition:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow to which you wish to add a condition.
5. The **'View Workflow Steps'** page will be displayed, showing the steps that make up the workflow, and each step's **Linked Status** and **Outgoing Transitions**.
6. Click the name of the transition to which you wish to add a post function. The **'View Workflow Transition'** page will be displayed.
7. Click the **'Post Functions'** tab. A list of the transition's existing post functions (if any) will be displayed. For example, the default workflow has the following built-in post functions for the **'Start Progress'** transition:



8. Click the **'Add'** link. A list of all available post functions will be displayed.
9. Select a post function from the list and click the **'Add'** button.
10. If the post function requires one or more configuration parameters (e.g. the name of an event), the **'Add Parameters To Post Function'** page will be presented. Enter the appropriate information and click the **'Add'** button.
11. The **'Post Functions'** tab will be displayed, showing your new post function at the bottom of the list of post functions.Note: from here you can:
    - Click the **'Edit'** link next to the post function's name to edit its configuration parameters (if there are any).
    - Click the **'Delete'** link next to the post function's name to remove the post function.
    - Click the **'Move Up'** link to move the post function higher up in the list (i.e. it will be executed earlier).
    - Click the **'Move Down'** link to move the post function lower down in the list (i.e. it will be executed later).

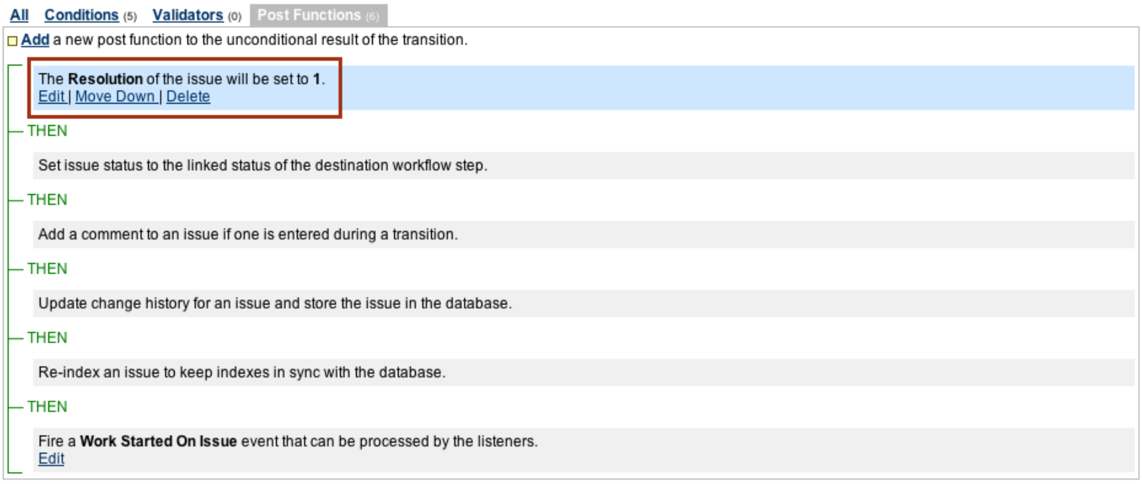
Using a post function to set a field

You can use a post function of type **'Update Issue Field'** to set the value of an issue's field(s) after a particular transition is executed.

Example: using a post function to set the 'Resolution' field

For a particular step in a workflow, you might need to create a transition that will move the issue to a 'closed' status (e.g. **'CLOSED', 'RESOLVED',** etc) - see 'open' and 'closed' issues. As part of this transition, you might want to automatically set the **'Resolution'** field. To do this:

1. Create/edit your transition. In the **'Transition View'** field, either select **'No View For Transition'** or choose a screen that does not contain the **'Resolution'** field (e.g. the **'Add Comment And Assign'** screen).
2. Add a new post function of type **'Update Issue Field'**. Select **'Resolution'** from the **'Issue Field'** select list and select a suitable resolution from the **'Field Value'** select list.
3. Once completed, the transition's list of post functions will appear as follows:



To create a transition that unsets the **'Resolution'** field, follow the same steps but select **'None'** from the **'Field Value'** select list when adding the post function. The list of post functions for this transition will include the following statement:

- **The Resolution of the issue will be cleared.**

Each time one of these transitions is executed, the **'Resolution'** of the issue is automatically set or unset as specified in these post functions.

Using a post function to send a notification

You can use a post function of type **'Fire an event that can be processed by the listeners'** to fire the **'Generic Event'.** The **'Generic Event'** is a built-in JIRA event whose purpose is to allow you to to send email notifications after a particular transition is executed.

Alternatively, you could fire a custom event that you have created specifically for this transition.

When a transition is performed, JIRA will:

- Look up the notification scheme associated with the issue's project, and identify the users associated with the fired event;
- Send an email notification to each user.
  (Note that the fired event is also propagated to all registered listeners.)

Example: using a post function to fire the 'Generic Event'

You can use the **'Generic Event'** to send email notifications. To do this:

1. Create/edit your transition.
2. Go to the transition's **'Post Functions** tab and edit the **'Fire an event that can be processed by the listeners'** post function.
3. On the **'Add Parameters To Post Function'** page, select **'Generic Event'** from the list of events.

Working with transition properties

Properties are key-value pairs that are can be used to further customise transitions. For example, transition properties help to extend the default workflow to allow language translations.

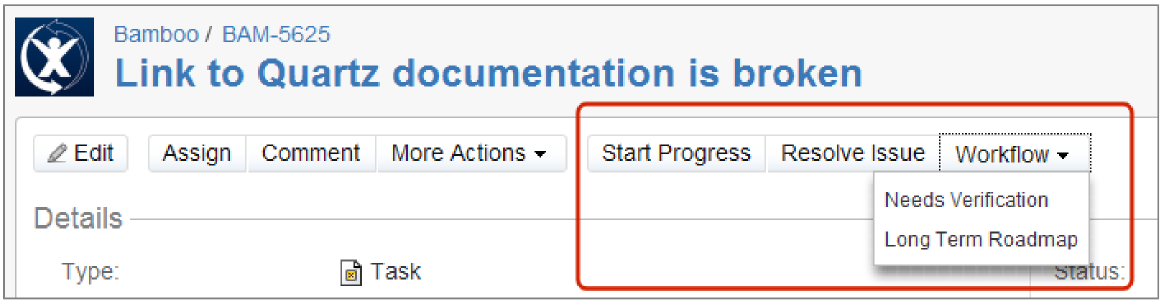
To view the properties of a transition:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown under *'Creating a workflow'* above. Click the **'Steps'** link next to the workflow to which you wish to add a condition.
5. The **'View Workflow Steps'** page will be displayed, showing the steps that make up the workflow, and each step's **Linked Status** and **Outgoing Transitions**.
6. In the 'Transitions' column, click the name of the transition for which you wish to view the properties. The **'View Workflow Transition'** page will be displayed.
7. Click the 'View **properties of this transition**' link. The **'View Workflow Transition Properties'** page will display listing the properties currently set up for the transition. You can also add and delete properties for this transition on this page.

Customising the appearance and order of workflow transitions on the 'View Issue' page

When viewing an issue, most of the operations and workflow transitions accessible to a user are available from a row of buttons towards the top of the issue, known as the 'Operations Bar'. As shown in the following screenshot, workflow transitions appear in the right-most set of buttons of the operations bar.

Screenshot: Workflow Transitions on the View Issue Page



By default, the first two transitions appear as separate buttons in the set of transition buttons. Any additional transitions 'spill over' into the 'Workflow' button dropdown menu. The order in which these buttons appear on the view issue page is based on the default workflow order, or for custom workflows, the order in which a JIRA administrator has added transitions to the custom workflow.

Hence, in the example above, the workflow transition order is: 'Start Progress' -> 'Resolve Issue' -> 'Needs Verification' -> 'Long Term

Roadmap'.

JIRA provides the ability to customise the appearance and order of these transitions on the View Issue page.

Changing the number of transition buttons

To change the number of transition buttons from the default of two (with any remaining transitions spilling over into the 'Workflow' button dropdown menu):

1. Shutdown JIRA.
2. Open the `jira-application.properties` file in a text editor. For more information about editing this file, please refer to Advanced JIRA configuration with jira-application.properties.
3. Uncomment the property `ops.bar.group.size.opsbar-transitions` and change its value to the required number of transition buttons required before the 'Workflow' button.
   If this property is commented out, the default value of 2 is assumed.
4. Save the updated `jira-application.properties` file and restart JIRA.

Changing the order of transition buttons and 'Workflow' menu items

To change the order of transition buttons, including additional transitions in the 'Workflow' dropdown menu on the 'View Issue' page, you need to add the property key `opsbar-sequence` to each workflow transition that you wish to re-order. Each `opsbar-sequence` property key requires a property value that defines the order of the transition action on issue views.

To add an `opsbar-sequence` property key and value to a workflow transition:

1. Refer to Working with transition properties (above) until the 'View Workflow Transition Properties' page appears for your chosen workflow transition.
2. In the 'Add New Property' section, type '`opsbar-sequence`' into the 'Property Key' field.
3. In the 'Property Value' field, type a positive integer value (starting at '0') that defines the order of the transition action on issue views.
   For each workflow transition, you may wish to use gaps in your `opsbar-sequence` property values (for example, 10, 20, 30, etc.) rather than consecutive values. This will allow you to 'insert' new workflow transitions more easily at a later point in time.
4. Click the '**Add**' button.

> Be aware that adding the `opsbar-sequence` property to a workflow transition does not change the order of these transitions on the '**View Workflow Steps**' page. The addition of this property only affects the order of transitions on the 'View Issue' page.

Using 'common transitions'

A 'common transition' is a transition that is defined only once in the workflow, but can be used more than once. That is, a common transition can have more than one originating step. The advantage of common transitions is that if a transition needs to be updated, the update only has to be done in one place.

You can edit common transitions in JIRA, but they cannot be created by the method described in *'Adding a transition'* (above). Instead, to create common transitions, you can either:

- **Copy the default workflow** — the default workflow contains common transitions (e.g. 'Start Progress', 'Resolve Issue', 'Close Issue'). Although you cannot edit the default workflow, you can copy it and then edit its steps and transitions to suit your requirements.
- **Create your workflow in XML** — see *'Using XML to create a workflow'* (below).

Using XML to create a workflow

JIRA uses OSWorkflow, a flexible and customisable workflow engine. JIRA's workflow editor generates OSWorkflow XML definition files that are stored in JIRA's database. If you need to take advantage of some OSWorkflow feature that is not available in JIRA's workflow editor (such as 'common' transitions - see above), you can define the workflow in XML and then import it into JIRA as described below.

Once the XML workflow has been imported, JIRA's workflow editor should be able to display most OSWorkflow definitions even if it does not support creating or editing them. For example, conditional results of workflow transitions are displayed in the **'Other'** tab on the **'View Workflow Transition'** page. The **'Other'** tab is only visible if a transition has elements that the editor does not directly support.

To import an XML workflow into JIRA:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **'Global Settings',** click the **'Workflows'** link.
4. The **'View Workflows'** page will be displayed as shown in *'Creating a Workflow'* (above). Locate the **'Add New Workflow'** form at the bottom of the page.
5. Click the **'Import a workflow from XML'** link. The **'Import Workflow'** page will be displayed.
6. In the **'Name'** field, type a name (usually 2-3 words) to identify your new workflow.

7. *(Optional)* In the **'Description'** field, type a detailed description of your new workflow.
8. Either:
    - In the **'Workflow Definition (XML)'** field, paste the contents of the workflow XML file; or
    - In the **'File'** field, type the full path to the file (note that the path must be local, i.e. you will need to first copy the file to your JIRA server).
9. Click the **'Import'** button.

Copying a workflow between systems

Sometimes it is useful to create a workflow in a test system and then copy it into a production system. To do this:

1. In the test system, export the workflow to XML by clicking the **'XML'** link next to the workflow in the list shown on the ' **View Workflows** ' page, and save the output into a file.
2. In the production system, import the file by clicking the 'Import a workflow from XML' link as described in ' *Using XML to create a workflow* ' (above).

> **When importing an XML workflow into JIRA:**
>
> JIRA's XML workflow definitions contain references to JIRA meta attributes. For example, the id of the linked JIRA status of each workflow step is stored as a 'jira.status.id' meta attribute in the step's definition. Therefore, when manually creating workflows in XML, please ensure that all referenced external entities exist before you import the workflow into JIRA.

> **When copying a workflow between systems:**
>
> Please note that conditions, validators and post functions can have parameters that might be valid in one system and not in another. For example, different systems might contain different sets of values for the **'Resolution'** field (since it is possible to define your own values). This would be a problem if the **'Update Issue Field'** post function is used to set the **'Resolution'** field to a value that exists in one system but not the other.

Activating Workflow

- How is Workflow 'Activated'?
    - What is a 'Workflow Scheme'?
- Creating a Workflow Scheme
- Associating a Workflow Scheme with a Project
- Editing a Workflow Scheme
- Disassociating a Workflow Scheme from a Project
- Additional Resources

How is Workflow 'Activated'?

Once you have created a new workflow or modified an inactive workflow, you will need to *activate* it. To activate a workflow, you need to:

1. Create a Workflow Scheme that references your workflow, and (optionally) associate it with the relevant issue type(s).
2. Associate the Workflow Scheme with the relevant project(s).

Some terminology:

- **"Active"** workflows are those that are currently being used.
- **"Inactive"** workflows are those that are not associated with any Workflow Schemes, or are associated with Workflow Schemes that are not associated with any projects.

> Please note that if you edit an active workflow, it does not need to be re-activated after your changes. Read more about editing active workflows.

What is a 'Workflow Scheme'?

A **Workflow Scheme** associates a particular workflow with particular projects and (optionally) particular issue types. Therefore it is possible to use a different workflow for every project/issue type combination, if you wish.

Creating a Workflow Scheme

To create a workflow scheme:

1. Log in as a user with the **'JIRA Administrators'** global permission.

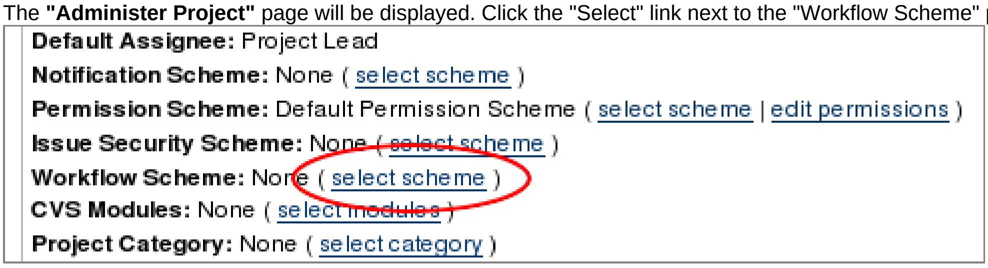
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **"Schemes",** click the **"Workflow Schemes"** link.
4. The **"Workflow Schemes"** page will be displayed, showing a list of all existing workflow schemes in your system. Click the **"Add Workflow Scheme"** link.
5. The **"Add Workflow Scheme"** page will be displayed. Type a **Name** and (optionally) a short **Description** for the new workflow scheme, then click the **"Add"** button. This will create the scheme.
6. The **"Edit Workflows"** page will be displayed, showing your newly-created scheme. Click the **"Assign a workflow to an issue type"** link.
7. The **"Add Workflow To Scheme"** page will be displayed.
    - In the **"Issue Type"** drop-down list, select an issue type that is relevant to your workflow. Note: you can also select "All Unassigned Issue Types" to associate your workflow with all issue types that do not have a specific association in this workflow scheme.
    - In the **"Workflow"** drop-down list, select the name of your new workflow.
    - Click the **"Add"** button.
8. Repeat the previous step until your new workflow has been associated with all the relevant issue types. Note that you can choose different workflows for some issue types if you wish.

Once a Workflow Scheme is fully defined you need to associate it with one or more projects (see below) so that the scheme's workflows are actually used by your JIRA system.

Associating a Workflow Scheme with a Project

To associate a workflow scheme with a project:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, click the **"Projects"** link.
4. A list of projects will be displayed. Click the name of the project in which you are interested.
5. The **"Administer Project"** page will be displayed. Click the "Select" link next to the "Workflow Scheme" property of the project.



6. The **"Associate Workflow Scheme to Project"** page will be displayed. Select the relevant scheme from the list and click the **"Associate"** button.
7. Follow the wizard, which will guide you through migrating all the project's issues to the new scheme's workflows.

> You can associate a workflow scheme with more than one project.

Editing a Workflow Scheme

To edit a workflow scheme, i.e. to change which workflows are associated with which issue types:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, under **"Schemes",** click the **"Workflow Schemes"** link.
4. The **"Workflow Schemes"** page will be displayed, showing a list of all existing workflow schemes in your system. Click the **"Workflows"** link next to the workflow scheme in which you are interested.
5. The **"Edit Workflows"** page will be displayed.
    - To associate a workflow with an issue type, click the **"Assign a workflow to an issue type"** link.
    - To disssociate a workflow from an issue type, click the **"Delete"** link.

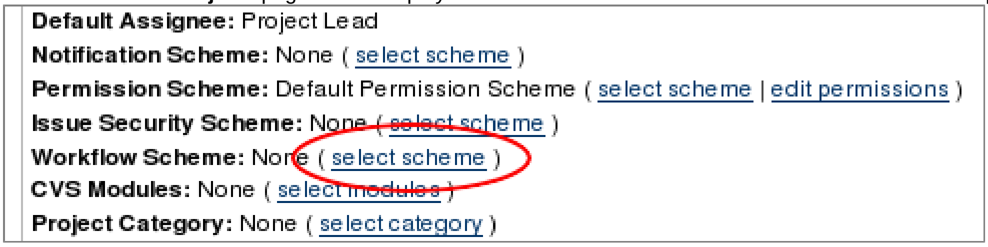
> It is not possible to edit an active workflow scheme, that is, a workflow scheme that is currently associated with one or more projects. Instead: copy it, edit the new copy and then associate all the relevant projects with the new copy.

Disassociating a Workflow Scheme from a Project

To disassociate a workflow scheme from a project:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, click the **"Projects"** link.

4. A list of projects will be displayed. Click the name of the project in which you are interested.
5. The **"Administer Project"** page will be displayed. Click the "Select" link next to the "Workflow Scheme" property of the project.



6. Select **"None"** from the presented list and click the **"Associate"** button.
7. Follow the wizard, which will guide you through migrating all of the project's issues to the default workflow.

> All projects that do not have an associated workflow scheme use JIRA's default workflow.

Additional Resources

- Workflow scheme overview tutorial video — Watch this short tutorial video to see how to create a new workflow scheme and associate it with a project in JIRA. Please note the JIRA version and JIRA edition of the tutorial video before watching.

Adding a Custom Event

On this page:

- Overview of JIRA Events
  - Event Types
    - System Events
    - Custom Events
- Configuring Notifications for a Custom Event
  - Step 1. Add a Custom Event
  - Step 2. Configure Notification Scheme to send mail on Custom Event
  - Step 3. Configure Workflow Transition Post-Function to Fire Custom Event
- Updates to Workflows on Disk

Overview of JIRA Events

JIRA uses an event-listener mechanism to alert the system that something has happened, and to peform appropriate action (e.g. send an email notification) based on the event that has occurred. Every *issue operation* within JIRA is associated with a particular *event* - e.g. the `Issue Created` event is fired when an issue has been created.

A Listener can execute a specified action once it has been notified that a particular event has been fired. For example, the MailListener can send an `Issue Created` email to a list of recipients defined in the appropriate Notification Scheme, whenever an issue is created.

Some events are fired by JIRA internally — e.g. an `Issue Updated` or `Issue Moved` event. Other events are fired from within workflow transition post-functions — e.g. an `Issue Resolved` event, or a Custom Event (see below).

Event Types

There are two types of events within JIRA:

- **System** — System events are used throughout JIRA internally, and cannot be added or deleted. You can, however, make them Inactive (see below).
- **Custom** — Custom events are used to generate an email notification (or invoke a listener) from a particular workflow transition's post-function. You can add/delete as many custom events as you need. Note that only *inactive* custom events can be deleted.

An event can be in either of the following states:

- **Active** — the event is associated with at least one notification scheme or workflow transition post-function
- **Inactive** — the event is not associated with any notification schemes or workflow transition post-functions.
  Note that the event state does not indicate whether the event is able to be fired. A **custom event** will only be fired if it is associated with a transition post-function for an active workflow (see 'Activating Workflow').

System Events

JIRA's built-in system events are:

Issue Created:	An issue has been entered into the system.
Issue Updated:	An issue has had its details changed.

Issue Assigned:	An issue has been assigned to a new user.
Issue Resolved:	An issue has been resolved (usually after being worked on and fixed).
Issue Closed:	An issue has been closed. (Note that an issue may be closed without being resolved; see Statuses).
Issue Commented:	An issue has had a comment added to it.
Issue Comment Edited:	An issue's comment has been modified.
Issue Reopened:	An issue has been re-opened.
Issue Deleted:	An issue has been deleted.
Issue Moved:	An issue has been moved into this project.
Work Logged On Issue:	An issue has had hours logged against it (i.e. a worklog has been added).
Work Started On Issue:	The Assignee has started working on an issue.
Work Stopped On Issue:	The Assignee has stopped working on an issue.
Issue Worklog Updated:	An entry in an issue's worklog has been modified.
Issue Worklog Deleted:	An entry in an issue's worklog has been deleted.
Generic Event:	The exact nature of this event depends on the workflow transition post-function(s) which invoke it. As with Custom Events, you can use the Generic Event to generate an email notification (or invoke a listener) from a particular workflow transition's post-function (see Workflow and Notifications).

Custom Events

You can fire a **custom event** from a custom transition post-function in a custom workflow. The appropriate listeners will be alerted of the custom transition by the firing of this event. For example, the associated notification scheme can be configured to notify users of the workflow transition based on the firing of this custom event.

Configuring Notifications for a Custom Event

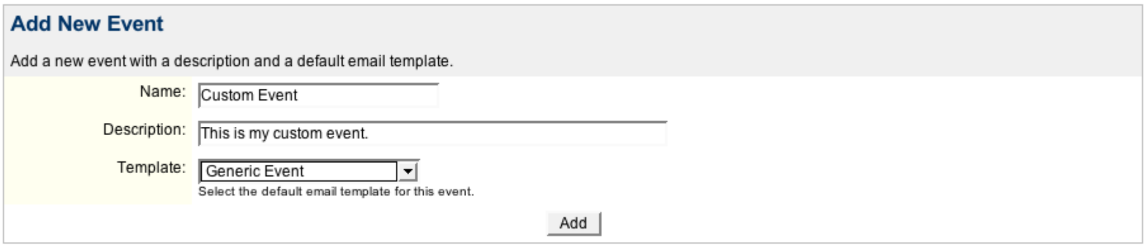
Custom events are most commonly used to generate notifications for custom workflow transitions. For example, your organisation might need you to modify the default workflow by adding a workflow step called "QA_Inspection" (e.g. between "Resolve Issue" and "Close Issue"). You would typically also need to generate an email notification to the QA team whenever an issue progresses to the "QA_Inspection" step of the workflow.

There are three overall steps to achieve this:

1. Add a custom event to the system (e.g. "Issue Awaiting QA").
2. Configure the notification scheme to send an email when the custom event is fired.
3. Configure the workflow transition post-function to fire the custom event.

Step 1. Add a Custom Event

1. Navigate to the **'Administration'** link from the main menu.
2. Select the **'Events'** link under the **'Global Settings'** section in the sub-menu.
3. Add a name and description for the new event.
4. Select a default email template to be associated with the event.
5. Click **'Add'**.

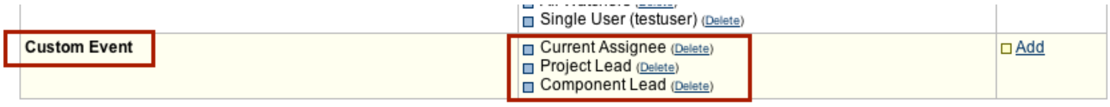


The custom event must be associated with a default email notification template. A notification scheme configured to notify users of this event will use this email template when sending the notification.

The custom event will appear in the list of events defined within the system. Initially, the event will be marked as **inactive** as it is not associated with a notification scheme or workflow post-function.

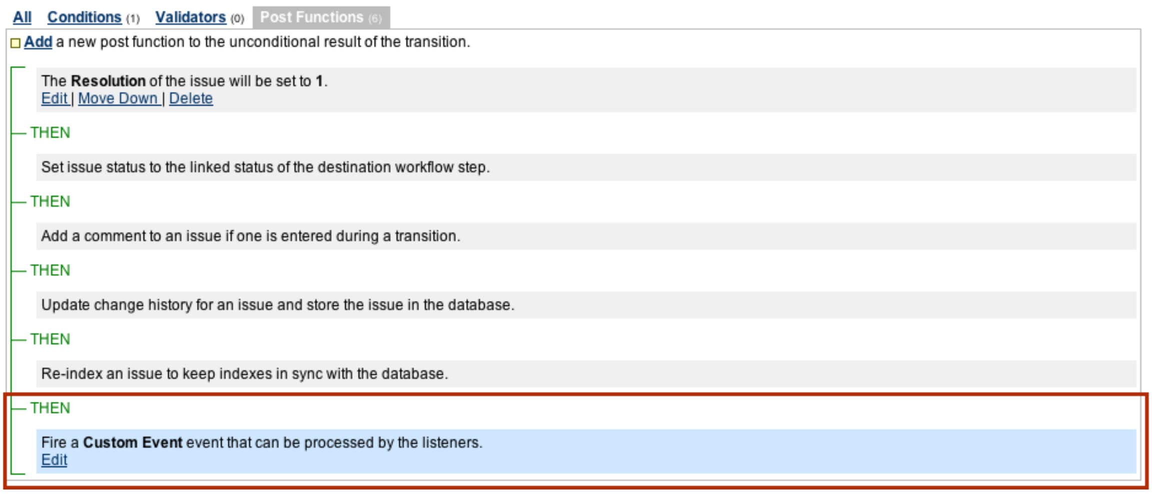
Step 2. Configure Notification Scheme to send mail on Custom Event

1. Navigate to the **'Administration'** link from the main menu.
2. Select the **'Notification Schemes'** link under the **Schemes** section in the sub-menu.
3. Select the notification scheme to edit.
4. Add the recipients for the custom event as required - further details available here.



Step 3. Configure Workflow Transition Post-Function to Fire Custom Event

1. Navigate to the **'Administration'** link from the main menu.
2. Select the **'Workflows'** link under the **'Global Settings'** section in the sub-menu.
3. Navigate to workflow transition post-function screen to be edited - further details available here.
4. Update the post-function to fire the custom event.
5. Activate or associate the workflow (and scheme) with the appropriate project (see 'Activating Workflow').



Updates to Workflows on Disk

As of JIRA 3.6, all event references are made through the `EVENT ID`. For pre-JIRA 3.6 data, all database tables (Workflow, Notification, etc.) are updated automatically. However, it is necessary to manually update event references in workflows saved to disk. This upgrade guide provides details on the changes required.

Configuring Email Notifications

JIRA can send email notifications to users when significant events occur (e.g. creation of an issue; completion of an issue).

On this page:

- Enabling Email Notifications
- Disabling Email Notifications
- Configuring a Project's Email Address

- Email Recipients
- Email HTML Formatting

In this chapter:

- Creating a Notification Scheme
- Customising Email Content
- Creating Issues and Comments from Email
- Configuring JIRA to Send SMTP Mail
- Configuring JIRA to Receive POP or IMAP Mail

Enabling Email Notifications

To enable email notifications in JIRA,

1. Configure an SMTP Mail Server.
2. Configure a notification scheme and associate it with the appropriate projects.

It is possible to customise your email content. The email address from which notifications are sent can also be configured for each project.

Disabling Email Notifications

To disable email notifications for a project, you can remove the notification scheme from the project by editing the project and selecting 'None' as the project's notification scheme.

Alternatively, you can edit the notification scheme so that no emails are sent.

Configuring a Project's Email Address

It is possible to configure the project email address that notifications are sent from. This will also serve as the reply address for responses, which can work in conjunction with Creating Issues and Comments from Email.

By setting the 'Sender' email address for a project, all notifications will be sent from this address. This setting is specific to the project selected and will not affect the configuration of the other projects. The default address specified in the SMTP Mail Server configuration is used as the default "sender" address for all projects.

The "sender" email address can be configured as follows:

1. From the Administration view, select "Projects" to view all projects. Select the project to be configured.
2. Select "Edit Configuration" from the "Mail Configuration" entry in the project detail list.
3. Enter a valid email address in the "sender" field and click "Confirm" to complete the process. This email address will now be used as the "sender" address in all notifications for this project.
4. The default email address as specified in the SMTP Mail Server can be reinstated by clicking the "Reset" button.

> This option is not accessible unless a SMTP Mail Server has been previously configured.

Email Recipients

For each event notification, JIRA will only send the first encountered email intended for a recipient. Hence, in the case where a user is included in two or more recipient lists (e.g. Project Lead and Current Reporter) for one event notification, the user will only receive the first encountered email notification. JIRA will log the fact that this user was on multiple recipient lists.

Email HTML Formatting

Each JIRA user can specify in their Profile Preferences whether to send outgoing emails in text or HTML format; JIRA administrators can specify a defaut email format under 'User Defaults' in the Administration menu.

Since Jira 3.6.1, the HTML email format was improved to accomodate internationalised words in the 'Issue Details' section. However, due to Internet Security Settings, which prevent automatic download of images, the HTML e-mail may not be correctly formatted. For example, the summary column on the left may appear too wide. It is possible to correct the formatting by accepting to download these images. On some e-mail clients it is possible to do this in two different ways:

1. per each email;
    - **Mozilla Thunderbird** — by clicking on the *"Show Images"* button above the e-mail
    - **Microsoft Outlook 2003** — by clicking on the *"Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message."* message above the e-mail
    - **Microsoft Outlook 2000** — does not have this option, it always downloads images
    - **Microsoft Outlook Express 6** — by clicking on the *"Some pictures have been blocked to help prevent the sender from identifying your computer. Click here to download pictures."* message above the e-mail
2. configuring the e-mail client;

- **Mozilla Thunderbird 1.5** — Navigate to **Tools -> Options -> Privacy -> General** tab and ensure that *"Allow remote images if the sender is in my:"* option is checked and note which address book is selected. Then return to the e-mail sent from JIRA, right-click on the sender's e-mail address and choose *"Add to address book..."* option, adding this contact to the same address book as was selected in the Privacy options
- **Microsoft Outlook 2003 and Outlook Express 6** — Navigate to **Control Panel -> Internet Options.** On the Security tab, add JIRA's base URL to the trusted sites

Creating a Notification Scheme

On this page:

- About Email Notifications
- Creating a Notification Scheme
- Assigning a Notification Scheme to a Project

About Email Notifications

JIRA can generate email notifications for various events that happen during the issue lifecycle. Notifications are defined within a *notification scheme* (see below), which associates particular events with particular email recipients. The notification scheme is then assigned to a particular project; note that you can use the same notification scheme for more than one project.

The events which can generate email notifications are:

Event	Description
Issue Created:	An issue has been entered into the system.
Issue Updated:	An issue has had its details changed. This includes the deletion of an issue comment.
Issue Assigned:	An issue has been assigned to a new user.
Issue Resolved:	An issue has been resolved (usually after being worked on and fixed).
Issue Closed:	An issue has been closed. (Note that an issue may be closed without being resolved; see Statuses).
Issue Commented:	An issue has had a comment added to it.
Issue Comment Edited:	An issue's comment has been modified.
Issue Reopened:	An issue has been re-opened.
Issue Deleted:	An issue has been deleted.
Issue Moved:	An issue has been moved into this project.
Work Logged On Issue:	An issue has had hours logged against it (i.e. a worklog has been added).
Work Started On Issue:	The Assignee has started working on an issue.
Work Stopped On Issue:	The Assignee has stopped working on an issue.
Issue Worklog Updated:	An entry in an issue's worklog has been modified.
Issue Worklog Deleted:	An entry in an issue's worklog has been deleted.
Generic Event:	The exact nature of this event depends on the workflow transition(s) from it was fired.
Custom Event(s):	The exact nature of these events depends on the workflow transition(s) from which they were fired.

JIRA does not have a specific notification event for the deletion of issue comments. When an issue's comment is deleted, JIRA sends out an email notification as an 'Issue Updated' event.

If multiple events occur at the same, then multiple emails will be sent. For example, if you edit an issue and change the "Assignee" field, and add a comment, *all* of "Issue Updated", "Issue Assigned" and "Issue Commented" are fired.

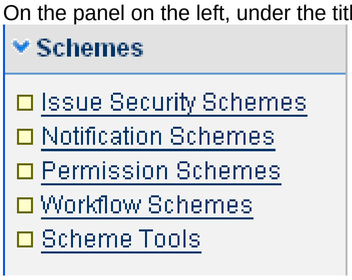
Note that email notifications will only be sent to people who have permission to view the relevant issue — that is, people who:

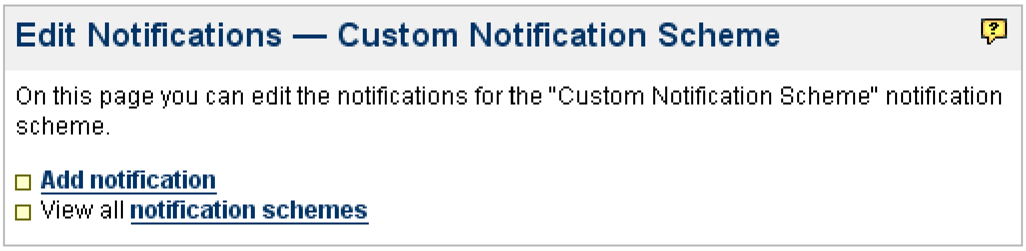
- have the 'Browse Project' permission for the project to which the issue belongs; and
- are members of any Issue security levels that have been applied to the issue.

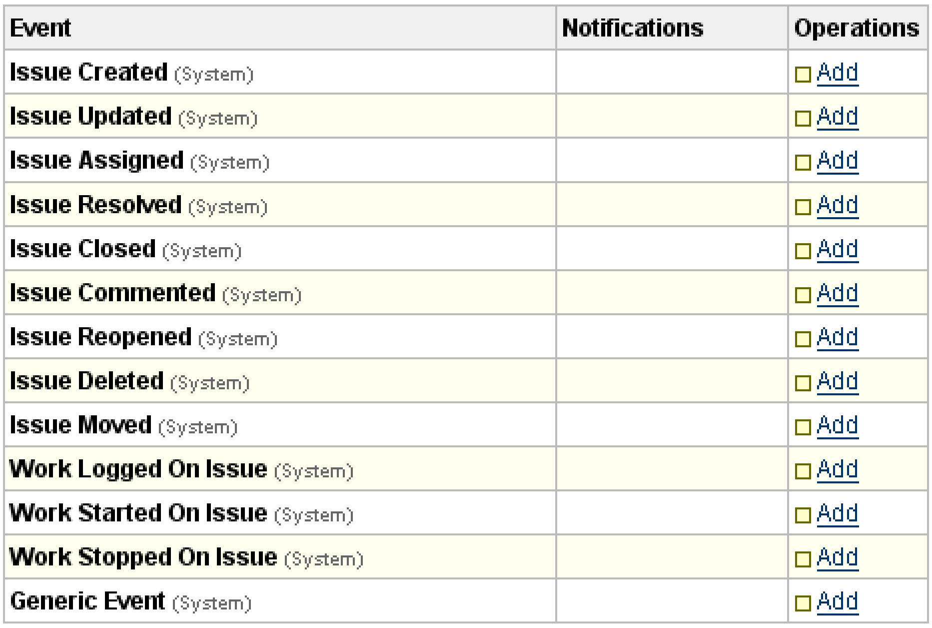
Also note that JIRA can only send email notifications if SMTP email has been enabled (see Email Overview).

> JIRA will send notification emails to both the **previous assignee and the current assignee**, whenever the assignee field changes.
> However past versions of JIRA only sent a notification email to the previous assignee IF the operation that changed the event was the "Assign Issue" operation. It did not send a notification if the issue was edited in some other way.
> The "**`jira.assignee.change.is.sent.to.both.parties`**" application property allows the old behavior to be re-instated, for those customers who liked the old behavior.
>
> See http://jira.atlassian.com/browse/JRA-6344 for more details

Creating a Notification Scheme

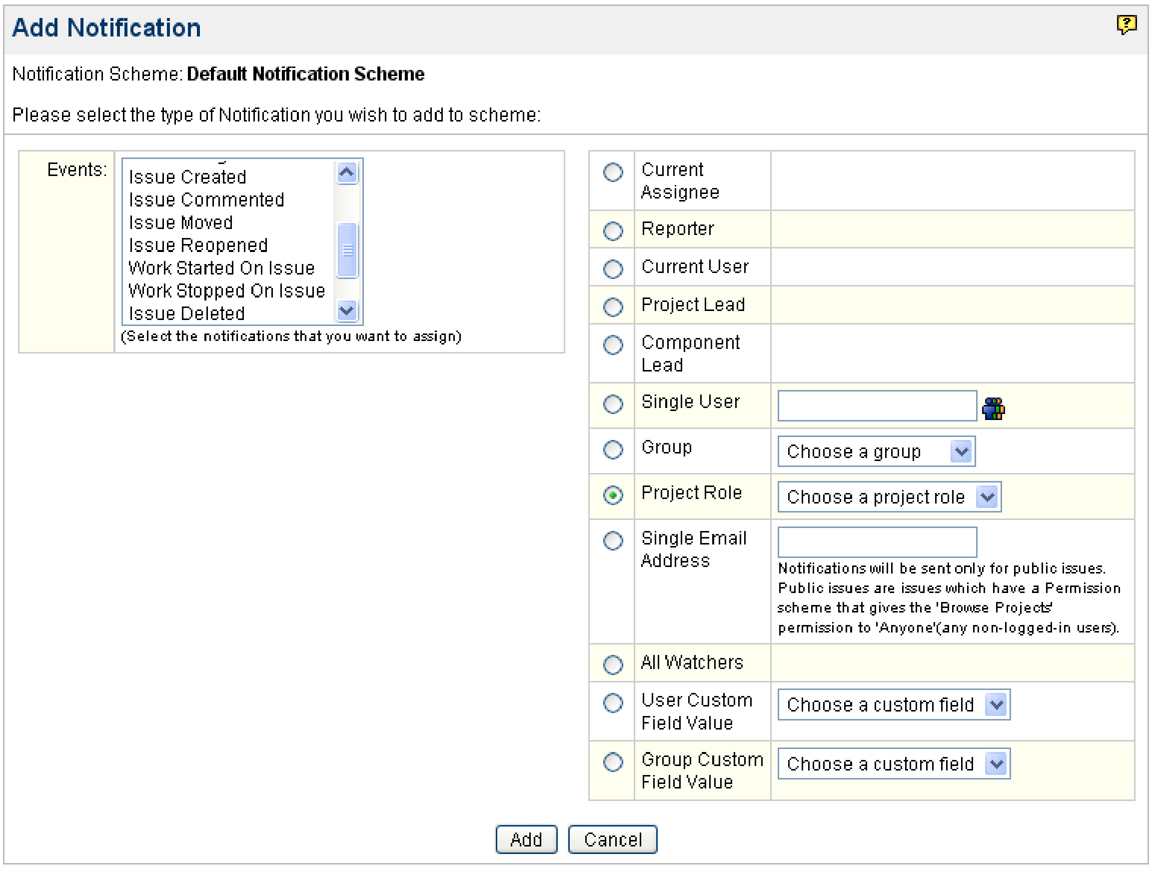
1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title 'Schemes, click the link labelled '**Notification Schemes**'.


4. This will display the 'Notification Schemes' page. This page lists all of the notification schemes that JIRA currently has. Click the '**Add Notification Scheme**' link.
5. In the 'Add Notification Scheme' form, enter a name for the notification scheme, and a short description of the scheme. Click the '**Add**' button.
6. You are then shown the 'Edit Notifications' page. This page lists all of the above mentioned issue life cycle events, along with whom should be notified. It is currently empty.
7. Click the '**Add**' link in the appropriate life cycle event row.




Event	Notifications	Operations
Issue Created (System)		Add
Issue Updated (System)		Add
Issue Assigned (System)		Add
Issue Resolved (System)		Add
Issue Closed (System)		Add
Issue Commented (System)		Add
Issue Reopened (System)		Add
Issue Deleted (System)		Add
Issue Moved (System)		Add
Work Logged On Issue (System)		Add
Work Started On Issue (System)		Add
Work Stopped On Issue (System)		Add
Generic Event (System)		Add

8. This will display the 'Add New Notification' page. Here you can choose who to notify, from the list of alternatives.



Where:

- **Current Assignee** is the user assigned to the issue.
- **Current Reporter** is the user who originally created the issue
- **Current User** is the user who performed the action triggering the event in question.
- **Single Email Address** is any email address that you wish to alert.

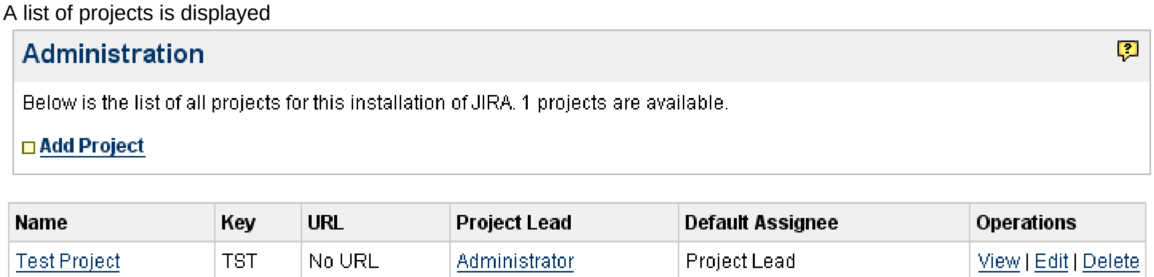
> A Single Email Address notification will only be sent if the issue is publicly viewable (as the email address of a non-JIRA user could be specified, in which case a security check is not possible). Publicly viewable issues are issues which have a Permission scheme that gives the 'Browse Projects' permission to 'Anyone' (any non-logged-in users).

- **User Custom Field Value** is any custom field value of type *User Picker* or *Multi User Picker* that may have been associated with issues. An example of where this can be useful, you have a custom User field called Tester, you have the tester notified when an issue is resolved.
- *(the rest are hopefully self-evident)* Note that project roles are useful for defining specific team members for each project. Referencing project roles (rather than groups) in your notifications can help you minimise the number of notification schemes in your system.

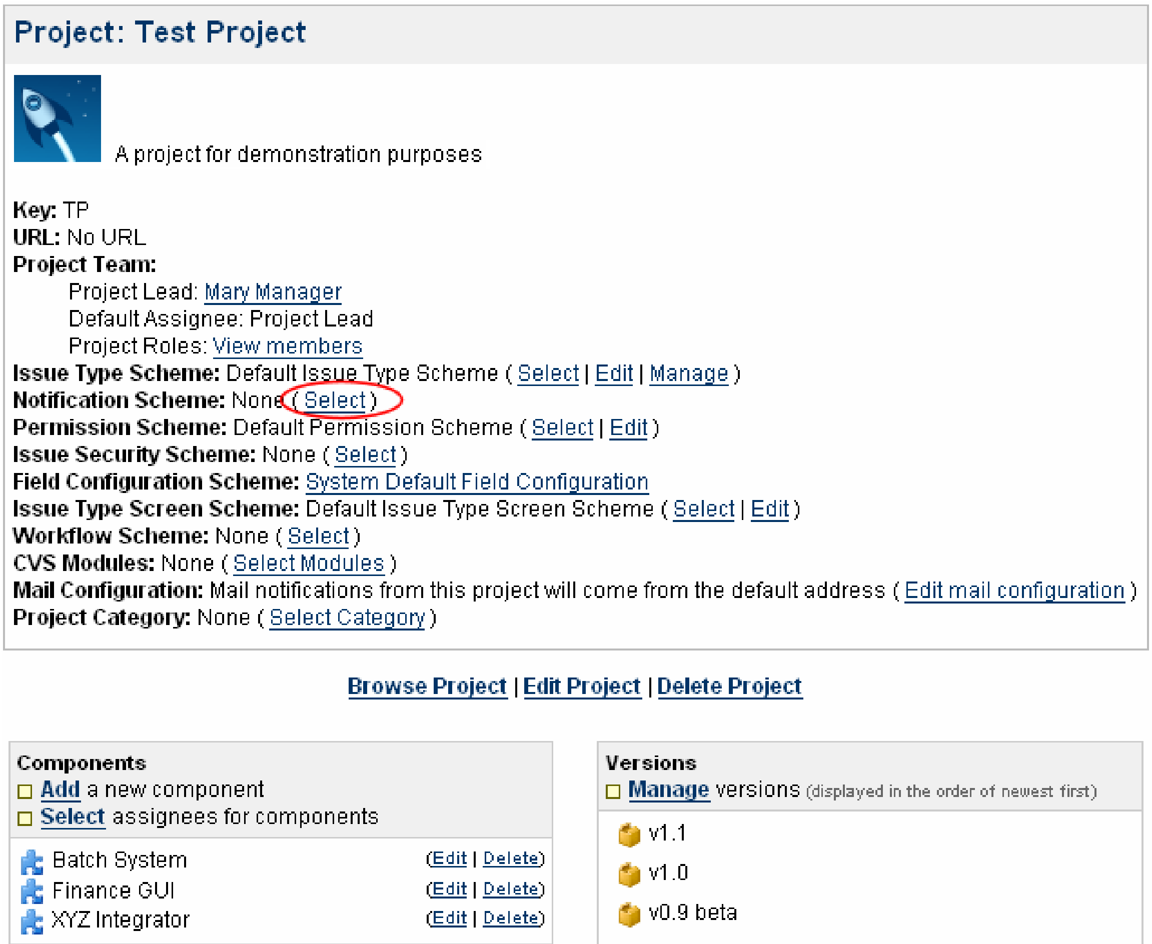
9. After selecting the appropriate option, and filling in any required information for that option, click the '**Add**' button.
10. You will be taken back to the 'Edit Notifications' page, with the notification you just specified now listed against the appropriate issue life cycle event.
11. Repeat steps 7 through 11 until you have specified all the notifications you want to happen.
12. If you make a mistake, or you would like to remove who is being notified, simply do so by clicking the '**delete**' link beside the person/group/role.

Assigning a Notification Scheme to a Project

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. A list of projects is displayed



4. Select the project you want by clicking on the project name. This will display the project details
5. Click the '**Select**' link beside the Notification Scheme caption.



6. This will bring up a list of notification schemes. Select the notification scheme that you want to associate with this project.
7. Click the '**Associate**' button to associate the project with the notification scheme.

> See also Minimising the number of Permission Schemes and Notification Schemes.

Customising Email Content

> Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

> Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

> To change the columns in your filter subscriptions, you don't need to customise the mail templates. See Customising your Issue Navigator.

> There's a feature request to improve this at JRA-7266. Please vote.

JIRA generates emails in reaction to events using a templating engine. The templating engine is Apache Jakarta's Velocity. This is a relatively easy to use templating language that can pull apart java objects in useful ways. The mails are generated inside JIRA by invoking Velocity with a set of objects of relevance to the event.

Email Template Locations

To customise email content, please follow this procedure.

1. Open up your JIRA distribution, and navigate to the following paths:
    - **Standalone:** `atlassian-jira/WEB-INF/classes/templates/email/`
    - **Source:** `jira/src/etc/java/templates/email/`
    - **WAR:** `webapp/WEB-INF/classes/templates/email/`
2. Under this directory there are three directories: `html`, `text` and `subject`. The `html` subdirectory contains the templates used to create emails in html, while the `text` directory the plain text mail outs. The `subject` directory contains the templates used to generate the subject of the emails. The templates are named after the event that will trigger the email.
3. Bring the template up in your favourite text editor. Referring to the JIRA template documentation (particularly Velocity Context for Email Templates) and Velocity Users Guide, make the customisations you want.
4. Restart JIRA.

Advanced Customisation

The Issue object is passed into the vm templates. Notice some of it's implementation in `/includes/summary-topleft.vm`. As an example, calling $issue.getProject() would allow you to determine the project an issue comes from, and even create logic to show different information for emails from different projects.

See also Adding Custom Fields to Email.

Creating Issues and Comments from Email

JIRA can be configured to automatically create issues or comments based on incoming email messages. This is especially useful in a helpdesk or support scenario, where users send support queries via email which you wish to track with JIRA. Subsequent emails about the issue (for example, responses to Email Notifications) can be automatically recorded as comments. Additionally, any attachments in the emails can automatically be attached to the issue (with appropriate configuration).

On this page:

- Mail Service Configuration
    - Step One:
    - Step Two:
- Issue/Comment Creation
- Handler Parameters
- Other Handlers
- Email pre-processing
- Troubleshooting
    - Common Problems
    - Getting Help
- Additional Resources

Mail Service Configuration

Step One:

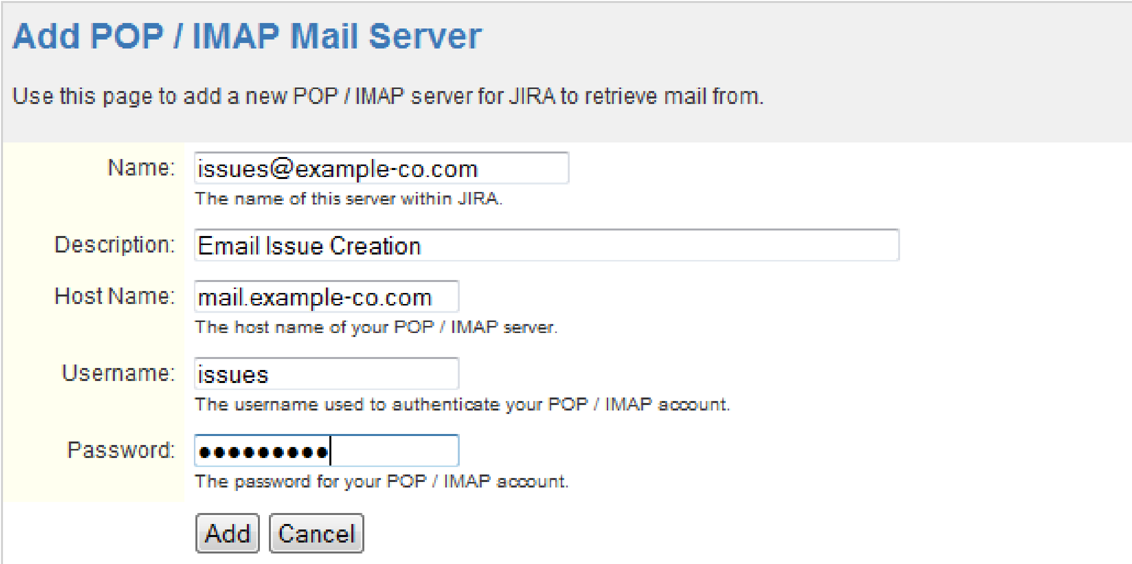
To set up issue and comment creation via email, you will need to create a mail account on your server – typically, one mail account for each project. For example, for the 'ABC' project, you might establish an account `issues@example-co.com`. This mail box should be accessible via POP, IMAP, or on the local filesystem.

JIRA will periodically scan this mail box and appropriately create issues or comments for any emails it finds. JIRA can also *optionally* create new user accounts for senders not previously seen. Note that this is not possible if you are using External User Management.

Step Two:

Once you have established a mail account, here is how to configure JIRA to periodically scan it (POP access assumed):

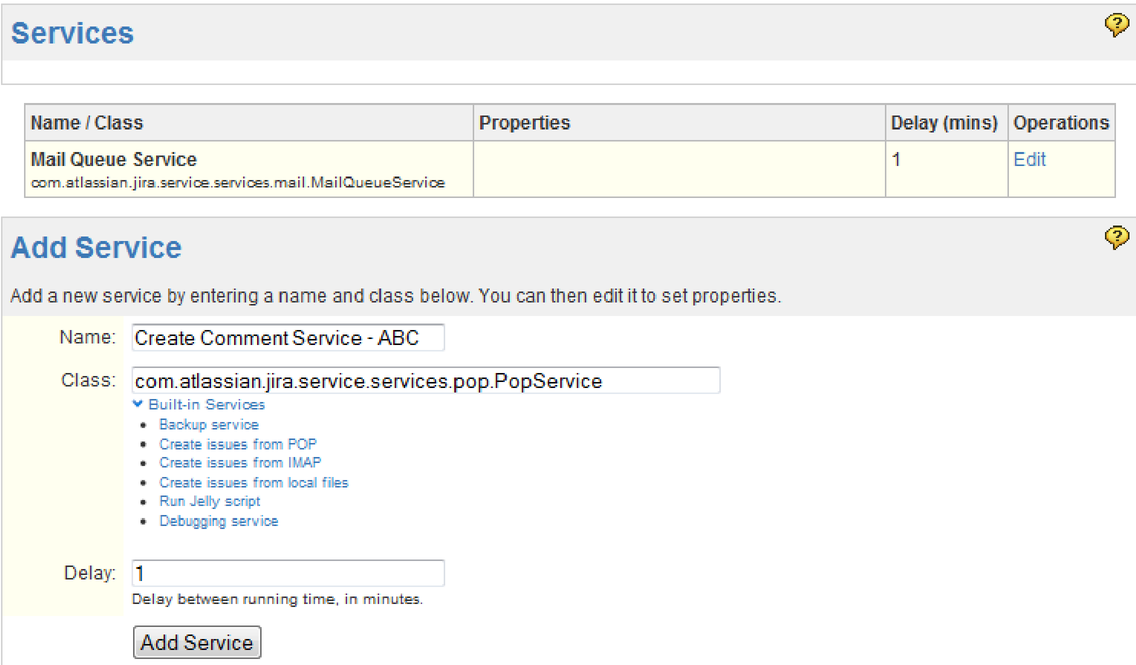
1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title **'Global Settings'**, click the link labelled **'Mail Servers'**.
4. Click the **'Configure new POP / IMAP mail server'** link. This will bring up the 'Add POP / IMAP Mail Server' page.



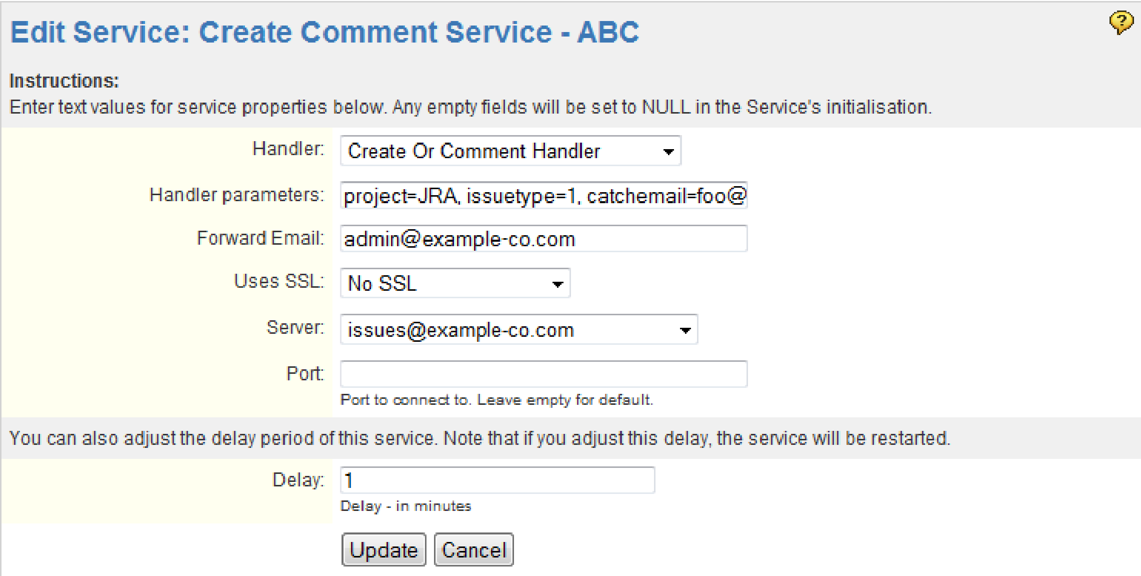
5. Fill in as follows:
    - '**Name:**' enter a short descriptive name, possibly just the email address that will be collected by this service
    - '**Description:**' enter a short phrase that describes this service, probably 'Email Issue Creation/Comments for <Project>'.
    - '**Host Name:**' enter the name of your POP or IMAP mail server
    - '**Username**' and '**Password:**' use the email account details as created in 'Step One' above.

    Note that the use of SSL is specified later in the service, not here in the Mail Server.

    If you need to set a non-standard port, this will need to be done by setting a `-Dmail.pop3.port=<port>` property (instead of `pop3` you can specify `pop3s`, `imap` or `imaps`). See JRA-11037 for more on this.
6. Click the '**Add**' button.
7. This will bring you back to the 'Mail Servers' page, where you should see a new POP or IMAP server listed towards the end of the page. You can edit and delete this server here.
8. On the panel on the left, under the title 'System', click the link labelled '**Services**'.
9. This will bring up the 'Services' page. It lists the current services running on this system. On a vanilla system there should be one service running — 'Mail Queue Service', which cannot be deleted. Additionally, if you have enabled the option to automatically backup JIRA's data, you will also see the 'Backup Service' listed here too.
10. Fill in the 'Add Service' form as follows:



    - '**Name**' — enter a descriptive name, eg "Create Issue/Comment Service for <Project>".
    - '**Class**' — select the appropriate option presented in the drop down list, or enter **com.atlassian.jira.service.services.pop.PopService**,
    - '**Delay**' — this is best left as 1 minute.
11. Click the '**Add Service**' button.
12. This will bring up the 'Edit Service' screen to configure the service.



- **'Handler'** — select "Create Or Comment Handler" from the drop down box. In the '**Handler parameters**' field, set Handler parameters to something like:

  ```
  project=JRA, issuetype=1, catchemail=foo@example-co.com, createusers=true,
  bulk=forward
  ```

  Further details on the **handler parameters** are available below.
  If you choose to connect over SSL, you will need to import and verify the server's SSL key before JIRA will be able to connect. See Connecting to SSL Services for more information.

- **Forward Email** — this parameter specifies an email address to which error notifications and (optionally) unhandled emails can be forwarded (see "bulk" parameter below). Any unhandled mails or failures encountered in this process are logged and forwarded in an email to this address.

13. Click the **'Update'** button and the service will be in effect.

Issue/Comment Creation

JIRA scans each incoming email to determine whether to create a new issue or to add a comment to an existing issue.

- The **email subject** is examined for an existing issue key.
- If an issue key is found in the subject, the email is added as a comment to the existing issue.
- If an issue key is NOT found in the subject, the **in-reply-to header** is examined.
  If this email is found to be a reply to another email from which an issue was previously created, a comment is added to the existing issue.
- If not, a new issue is created.

For example, the email to `foo@example-co.com` will be processed as follows:

- Issue Creation:
  - The subject of the email will become the issue summary.
  - The body of the email will be the issue description.
  - A bug (since issue type has been set to 1 in this example) will now be created for project "JRA" with the above information.
  - Any attachments to the email will become attachments to the issue (assuming attachments have been enabled in JIRA). Note that, to ensure compatibility with various operating systems, any of the following characters in the filename will be replaced with an underscore character: \, /, ", %, :, $, ?, *, <, |, >.
  - If the incoming email is set to a high priority, the corresponding issue will be created with a higher priority than the default priority that is set in your JIRA system.
- Comment Creation:
  - The body of the email will become a comment on the issue
  - Any attachments to the email will become attachments to the issue (assuming attachments have been enabled in JIRA)

> The **Subject** of the email becomes the issue summary. As all issues require a summary, each email intended for issue creation should include a **Subject.**

This is how JIRA determines whether an email should

Handler Parameters

project parameter is the project key.

> The **project** parameter is only relevant for issue creation, not for issue commenting.
>
> If an email is related to an issue that exists in the JIRA instance, the handler will add the email as a comment on the issue, regardless of which project the issue is in.

These are the numbers associated with the default **issue types:**

- **Bug:** `issuetype=1`
- **New Feature:** `issuetype=2`
- **Task:** `issuetype=3`
- **Improvement:** `issuetype=4`
- **Sub-task:** `issuetype=5`

You can use the method described here to determine what numbers are mapped to your issue types.

Besides **project** and **issuetype,** the following parameters are allowed:

- **createusers** — if **createusers** is set to true, people who don't currently have an account in JIRA will have it created for them. This allows the creator to be notified of subsequent updates to the issue, by configuring the notification scheme to notify the 'Reporter' of updates.
- **reporterusername** — this sets which user will be the "reporter" of created issues, for emails whose sender does *not* match that of an existing user. Normally JIRA will ignore emails from addresses not matching an existing user. For instance, to allow anonymous users to create issues via email, you can create an anonymous user or dummy account on JIRA and set the **reporterusername** to point to this account. When the "reporterusername" parameter is specified, the "from" e-mail address is appended to the issue description field when the issue is created, so you can identify the sender.
  Please make sure the specified user has permission to create issues or comments in the project in question. See Managing Project Permissions.
- **notifyusers** — this parameter is only used if **createusers** is set to true. If **notifyusers** is set to false they will not receive a notification that their account has been created via email. The default value is true to preserve the behaviour before this parameter was added.
- **ccassignee** — if the To or Cc field of an email contains the address of a user already present in JIRA, then by default JIRA will **assign** the issue created from the email to that user. JIRA will attempt to assign the issue to a user from the To field first, then the Cc field, if it cannot find a match in the To field. If you do not wish JIRA to automatically assign issues in this way, then set **ccassignee** to **false.**
- **bulk** — this parameter determines how to handle "bulk" emails (those sent by an automated service, notably JIRA itself), indicated by a "Precedence: bulk" header or an "Auto-Submitted" header that is not set to "no". Possible values are:
  - *ignore* — Ignore the email and do nothing
  - *forward* — Forward the email to the address set in the "Forward Email" text field
  - *delete* — Delete the email permanentlyIt is generally a good idea to set **bulk=forward** and set a Forward Email address, to prevent mail loops between JIRA and another automated service (eg. another JIRA installation).
- **catchemail** — this causes JIRA to only process emails sent *to* the email address specified in this field. Upon specifying an address here, all other email addresses are ignored. This is useful if you have multiple aliases for the same email Inbox, eg. `foo-support@example-co.com` and `bar-support@example-co.com` aliases for `support@example-co.com`, and you want one email service each, eg. to create issues in FOO and BAR projects respectively. Please note that **this parameter is rarely useful,** and should not be confused with the more common **reporterusername.**
  You can only specify one catch email address and one issue type per listener.
- **stripquotes** --- This option enables the use of the NonQuotedCommentHandler to strip previous messages from replies.

Other Handlers

For more information on other handlers that are shipped with JIRA please refer to this document.

Email pre-processing

For production use, we recommend that you set up the following email pre-processing:

- Ensure mail is sent to a backup folder, so there is a record of what JIRA processed.
- If the POP box contains email replies to JIRA notifications, set up rules filtering out email auto-replies and bounces.
  If you do not do this, there is a strong possibility of mail loops between JIRA and autoresponders like vacation scripts. JIRA sets a 'Precedence:bulk' header (unless you've disabled this) and an 'Auto-Submitted' header on outgoing email, but some autoresponders ignore it.
  There is no bulletproof way of detecting whether an email is a bounce or autoreply. The following rules (in procmail format) will detect most autoreplies:

```
^From:.*mailer-daemon@
^Auto-Submitted:.auto-
^Content-Type:\ multipart/report;\ report-type=delivery-status
^Subject:\ Delivery\ Status\ Notification
^Subject:\ Undeliverable
^Subject: Returned Mail:
^From:\ System\ Administrator
^Precedence:\ auto_reply
^Subject:.*autoreply
^Subject:.*Account\ signup
```

Even with these rules, you may encounter autoreplies with nothing in the headers to distinguish it from a regular mail, In these cases you will just need to manually update the filters to exclude that sender.

- Set up a filter to catch email with huge attachments. JIRA uses the standard JavaMail library to parse email, and it quickly runs out of memory on large attachments (eg. > 50Mb given 512Mb heap). As the unhandled mail isn't deleted, it will be reprocessed (causing another OutOfMemoryError) each time the mail service runs.
  In practice this problem is rarely seen, because most mail servers are configured to not accept email with huge attachments. Unless you're sure yours won't pass a huge attachment on to JIRA, it is best to configure a filter to prevent JIRA encountering any huge attachments.
- Set up spam filtering rules, so JIRA is not having to process (and possibly create issues from) spam.

Troubleshooting

A useful tip for debugging mail-related problems in JIRA is to set the `-Dmail.debug=true` property on startup. This will cause protocol-level details of JIRA's email interactions to be logged. Additionally, turning up JIRA's log level will show when the service is running and how mails are processed.

Common Problems

- If JIRA doesn't appear to be creating sending emails or creating issues and comments from email, your JIRA instance could be experiencing **OutOfMemory errors**. Please check your log files for OutOfMemory errors. If there are OutOfMemory errors, please restart JIRA and investigate the errors.
- If you find some incoming emails simply disappear, check that you haven't accidentally **started a second copy of JIRA** (eg. in a staging environment) which is downloading and deleting mails. See the Restoring Data page for flags you should set to prevent mail being processed.
- If you receive email with **non-ASCII attachment names**, particularly from Thunderbird users, you will need to configure JavaMail to support RFC 2231-encoded attachments. See JRA-12525 for details.
- If replies by email of JIRA's notifications list JIRA's SMTP server rather than the configured handler POP account (ie, in Outlooks' 'Reply-to' functionality), the project needs to be configured to add a 'reply-to' header in outgoing notifications. This can be configured in the project view for that particular project in JIRA's Administration.
- If HTML/Rich Text formatting is not being process correctly by JIRA, this is an expected behavior. The email comment handler was designed to do plain text conversion.

Getting Help

If you cannot resolve a problem yourself, please create a support case in the 'JIRA' project and we will assist.

Additional Resources

- Creating comments and issues via email tutorial video — Watch this short tutorial video to see how to create a comments and issues in JIRA via email. Please note the JIRA version and JIRA edition of the tutorial video before watching.
- JIRA Extendable Mail Plugin

Configuring JIRA to Send SMTP Mail

To enable JIRA to send notifications about various events, you need to first configure JIRA to send SMTP email.

On this page:

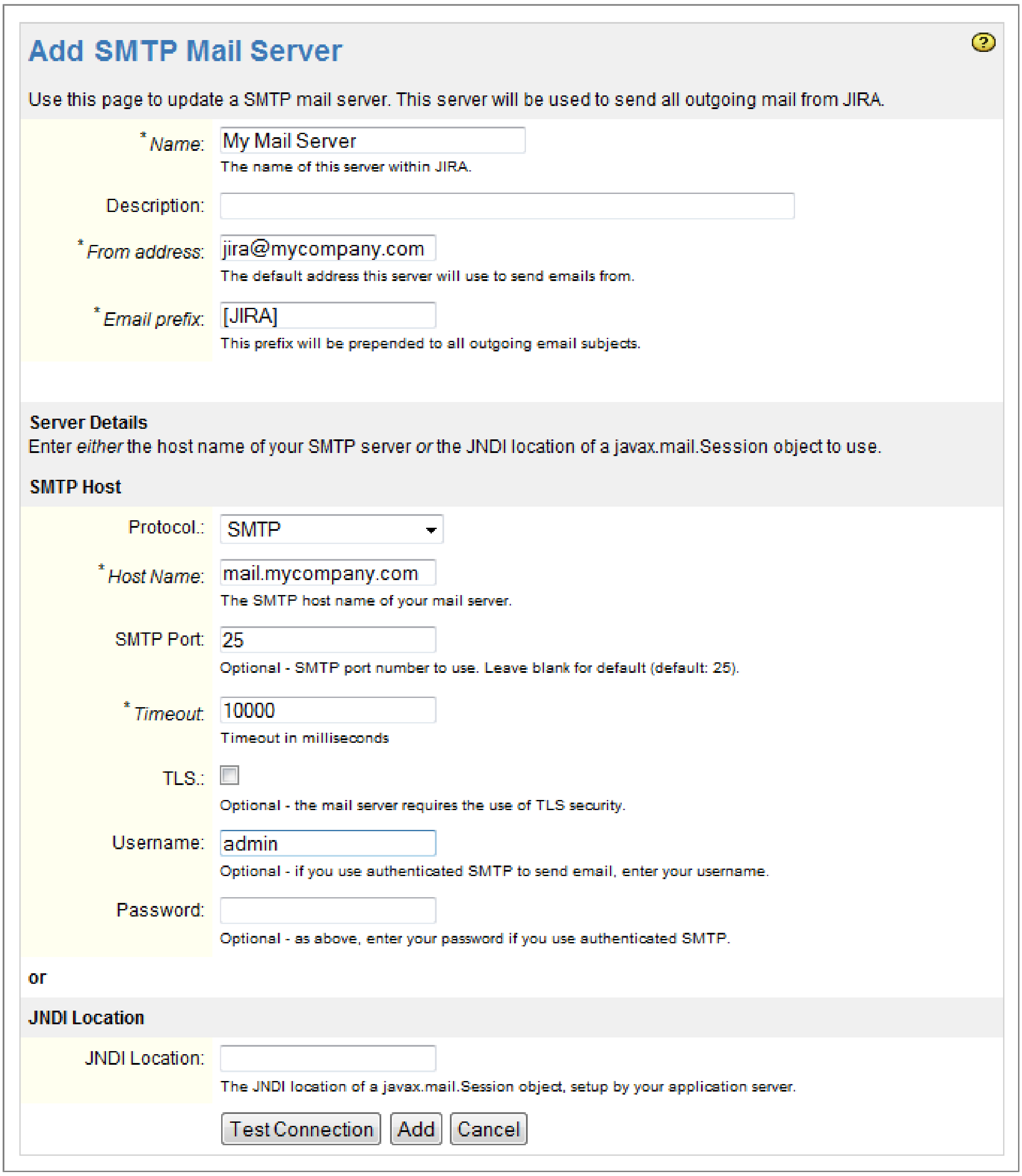
- 1. Define the SMTP Mail Server
- 2. Specify the Host Name or JNDI Location
  - Specify the Host Name
  - Specify and configure a JNDI Location
    - Move the JavaMail Classes
    - SMTP over SSL
- Troubleshooting
    - Common Problems
    - Getting Help

1. Define the SMTP Mail Server

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click "Mail Servers" in the left-hand column (under "Global Settings").
4. Click "Configure new SMTP mail server".
5. This will display the "Add SMTP Mail Server" screen. Complete the top section as follows:

Name	An arbitrary name to associate with this email server configuration.
Description	(Optional) Email server description.
From address	The email address that outgoing mails will appear to have come from (unless overridden per project). Note that this is just the address part ("jira@company.com"). JIRA will use it in constructing the full From header based on the current user ("Joe Bloggs (JIRA) <jira@company.com>"). To change the From header, go to the "Administration" menu, select "General Configuration" (under "Global Settings") and edit the **Email From Header** field.
Email prefix	The subject of emails sent from this server will use this string as a prefix. This is useful for your users so that they can filter their email.

Screenshot: Add SMTP Mail Server



2. Specify the Host Name or JNDI Location

The second part of the screen specifies the **Server Details** of the SMTP server to which JIRA will send mail. There are two ways you can do this. Either:

- specify the **Host Name** of your mail server;
  or:
- specify the **JNDI Location** — that is, use JNDI to look up a mail server that you have preconfigured in your application server. This has the following advantages:
  - Better security: the mail details are not available to JIRA administrators through the JIRA administration interface, and are not stored in JIRA backup files.
  - More SMTP options: for instance, you could switch to RSET instead of NOOP for testing connections by setting the `mail.smtp.userset` property.
  - Centralised management: mail details are configured in the same place as database details, and may be configured through your application server administration tools.

Specify the Host Name

Most people configure SMTP details directly in JIRA. The form fields are as follows:

Host Name	Hostname or IP address of your SMTP server. Eg. `mail.yourcompany.com`
SMTP Port	The SMTP port, usually 25.
Timeout	The timeout period in milliseconds, defaults to 10000.
TLS	Select this check-box if your SMTP host uses the Transport Layer Security protocol.
Username	Username to connect as, if your SMTP host requires authentication. (Most company servers require authentication to relay mail to non-local users.)
Password	Password for username (if required by your SMTP host).

> If your server's startup script uses the **"-Dmail"** system properties (e.g. **"mail.smtp.host"** or **"mail.smtp.port"**), they will override the settings that you specify in the above form. Additionally, if necessary you can manually specify the host name that JIRA reports itself as to the SMTP server by setting **-Dmail.smtp.localhost**

Once done, click 'Update' and then "Send a Test Email" to test the connection details.

Specify and configure a JNDI Location

As an alternative to specifying mail details directly in JIRA, you can configure them in your application server, and then look up a preconfigured mail session via JNDI.

On the *'Add SMTP Mail Server'* screen (see above), complete the following form field:

JNDI Location	The JNDI location of a javax.mail.MailSession object to use when sending email. This will begin with the prefix `java:comp/env/`.

The **JNDI Location** will depend on your application server and configuration. For example, in Tomcat 6 (the default application server that is bundled with JIRA Standalone), your **JNDI Location** would be **java:comp/env/mail/JiraMailServer,** and you would add the following section in `conf/server.xml` , inside the <Context> node:

```
<Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
     ....

     <Resource name="mail/JiraMailServer"
       auth="Container"
       type="javax.mail.Session"
       mail.smtp.host="mail.yourcompany.com"
       mail.smtp.port="25"
       mail.transport.protocol="smtp"
       mail.smtp.auth="true"
       mail.smtp.user="jirauser"
       password="mypassword"
       />
       </Context>
```

Or if you don't require authentication (e.g. if you are sending via localhost, or only internally within the company):

```
<Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
     ....

     <Resource name="mail/JiraMailServer"
       auth="Container"
       type="javax.mail.Session"
       mail.smtp.host="localhost"
       mail.smtp.port="25"
       mail.transport.protocol="smtp"
       />
       </Context>
```

The format for other application servers will be similar. For details please see the Transaction Factory documentation.

If you have problems connecting, add a **mail.debug="true"** parameter, which will let you see SMTP-level details when testing the connection.

Move the JavaMail Classes

You will also need to ensure that the JavaMail classes are present in your application server's classpath, and do not conflict with JIRA's copy. This is necessary because the application server is establishing the SMTP connection, not JIRA, and the application server will not see the JARs in JIRA's classloader.

Some operating systems may ship the JavaMail classes with application servers (eg. **Tomcat in Red Hat Enterprise Linux**). This may conflict with JIRA's copy of the JavaMail classes, resulting in errors like:

```
java.lang.NoClassDefFoundError: javax/mail/Authenticator
```

or:

```
java.lang.IllegalArgumentException: Mail server at location [java:comp/env/mail/JiraMailServer] is
not
         of required type javax.mail.Session.
```

Lighter app servers — **Tomcat** (including **JIRA Standalone**) — do not always come with JavaMail.

To prevent any conflicts, check your application server's `lib/` directory:

- If the application server already contains `mail-1.4.1.jar` and `activation-1.1.1.jar`, then just **remove** `WEB-INF/lib/mail-1.4.1.jar` and `WEB-INF/lib/activation-1.1.1.jar` from the JIRA webapp.
- If the application server does not contain `mail-1.4.1.jar` and `activation-1.1.1.jar`, then **move** JIRA's `WEB-INF/lib/mail-1.4.1.jar` and `WEB-INF/lib/activation-1.1.1.jar` into the application server's lib/ directory.

SMTP over SSL

You can encrypt email communications between JIRA and your mail server via SSL, provided your mail server supports SSL.

Firstly, you will need to **import the SMTP server certificate** into a Java keystore. The process is described on the Connecting to SSL Services page.

Important note: Without importing the certificate, JIRA will not be able to communicate with your mail server.

Secondly, edit your mail server connection properties and specify `starttls` and `SSLSocketFactory`. From { `$JIRA_INSTALL}/conf/server.xml` (this example uses Gmail's server):

```
<Resource name="mail/GmailSmtpServer"
   auth="Container"
   type="javax.mail.Session"
   mail.smtp.host="smtp.gmail.com"
   mail.smtp.port="465"
   mail.smtp.auth="true"
   mail.smtp.user="myusername@gmail.com"
   password="mypassword"
   mail.smtp.starttls.enable="true"
   mail.smtp.socketFactory.class="javax.net.ssl.SSLSocketFactory"
 />
```

Troubleshooting

A useful tip for debugging mail-related problems in JIRA is to set the `-Dmail.debug=true` property on startup. This will cause protocol-level details of JIRA's email interactions to be logged. Additionally, turning up JIRA's log level will show when the service is running and how mails are processed.

Common Problems

- If JIRA doesn't appear to be creating or sending emails or creating issues and comments from email, your JIRA instance could be experiencing **OutOfMemory errors**. Please check your log files for OutOfMemory errors. If there are OutOfMemory errors, please restart JIRA and investigate the errors.
- If you find some incoming emails simply disappear, check that you haven't accidentally **started a second copy of JIRA** (eg. in a staging environment) which is downloading and deleting mails. See the Restoring Data page for flags you should set to prevent mail being processed.
- If you receive 'Mail Relay' errors, make sure you have specified the **Username** and **Password** in the '**SMTP Host**' section of the configuration screen.

Getting Help

If you cannot resolve a problem yourself, please create a support case in the 'JIRA' project and we will assist.

Using Gmail as a JIRA Mail Server

This page describes how to use Gmail for both SMTP and POP3 mail.

Configuring GMail for Outgoing Mail (SMTP)

Follow the instructions from Configuring JIRA to Send SMTP Mail:

1. Download OpenSSL:
   Linux: http://www.openssl.org/
   Windows: http://gnuwin32.sourceforge.net/packages/openssl.htm
2. Import the SSL certificate from Gmail:
   For Windows: double-click the openssl file from the directory that gets installed. Run

   ```
   s_client -connect smtp.gmail.com:465
   ```

   For Linux: run:

   ```
   openssl s_client -connect smtp.gmail.com:465
   ```

3. From the output, you want only the alphanumeric string between the *lines* which say 'BEGIN CERTIFICATE' and 'END CERTIFICATE' (inclusive). Copy the results into a file called gmail.cert using your favorite text editor.

```
   i:/C=US/O=Equifax/OU=Equifax Secure Certificate Authority
---
Server certificate
-----BEGIN CERTIFICATE-----
MIIDWzCCAsSgAwIBAgIKFMs0nQADAAASjjANBgkqhkiG9w0BAQUFADBGMQswCQYD
VQQGEwJVUzETMBEGA1UEChMKR29vZ2xlIEluYzEiMCAGA1UEAxMZR29vZ2xlIElu
dGVybmV0IEF1dGhvcml0eTAeFw0xMDA0MjIyMDAyNDVaFw0xMTA0MjIyMDEyNDVa
MGgxCzAJBgNVBAYTAlVTMRMwEQYDVQQIEwpDYWxpZm9ybmlhMRYwFAYDVQQHEw1N
b3VudGFpbiBWaWV3MRMwEQYDVQQKEwpHb29nbGUgSW5jMRcwFQYDVQQDEw5zbXRw
LmdtYWlsLmNvbTCBnzANBgkqhkiG9w0BAQEFAAOBjQAwgYkCgYEAz4B46NG2l4Bk
DdccddAuuOssQ4ZxCHoyj+ErdlEqZurVCoGQzAkhZTkzHrmIgYmM6roTbkF/zEaa
2ROe9s4VoL4OgUnoyB0u1KbwrG5PHBbsMdk0r6jMmhh+MORFVYgQrFxJnu8GnHiG
W4QhmKVytu0FclYE+F1gOOx5qIgTVCMCAwEAAaOCASwwggEoMB0GA1UdDgQWBBS1
+KKmwdxtkpKkJgvwhZztqe0uszAfBgNVHSMEGDAWgBS/wDDr9UMRPme6npH7/Gra
42sSJDBbBgNVHR8EVDBSMFCgTqBMhkpodHRwOi8vd3d3LmdzdGF0aWMuY29tL0dv
b2dsZUludGVybmV0QXV0aG9yaXR5L0dvb2dsZUludGVybmV0QXV0aG9yaXR5LmNy
bDBmBggrBgEFBQcBAQRaMFgwVgYIKwYBBQUHMAKGSmh0dHA6Ly93d3cuZ3N0YXRp
Yy5jb20vR29vZ2xlSW50ZXJuZXRBdXRob3JpdHkvR29vZ2xlSW50ZXJuZXRBdXRo
b3JpdHkuY3J0MCEGCSsGAQQBgjcUAgQUHhIAVwBlAGIAUwBlAHIAdgBlAHIwDQYJ
KoZIhvcNAQEFBQADgYEAUc39Y22ucA2N4mmDdPMC8DKbrRGlGMpC294mfh3yCkJa
YRWjodFQSgCtFyKhTZ9roFpSEL0D4QxAtLSwtC0bSaSVusfAW3/CFgG/Cya724ic
9UoEosoG8CK+eGoGQuEsZ0xR86J5jOs2H+4QPHFCn594V7ZySzdeQi93YV31RBE=
-----END CERTIFICATE-----
subject=/C=US/ST=California/L=Mountain View/O=Google Inc/CN=smtp.gmail.com
issuer=/C=US/O=Google Inc/CN=Google Internet Authority
---
```

4. Exit the openssl prompt, and return to your Java installation's `bin` directory. Import the cert into your keystore:

   > "A keystore is created whenever you use a -genkey, -import, or -identitydb command to add data to a keystore that doesn't yet exist. More specifically, if you specify, in the -keystore option, a keystore that doesn't yet exist, that keystore will be created. If you don't specify a -keystore option, the default keystore is a file named .keystore in your home directory. If that file does not yet exist, it will be created."
   > From Sun´s Documentation on Keytool

   For Windows:

   ```
   keytool -import -alias smtp.gmail.com -keystore $JAVA_HOME/jre/lib/security/cacerts -file
   C:\path\to\gmail.cert
   ```

   Fore Linux:

   ```
   sudo keytool -import -alias smtp.gmail.com -keystore $JAVA_HOME/jre/lib/security/cacerts
   -file /path/to/gmail.cert
   ```

   > The default keystore password is 'changeit'.

5. **Move** (not copy!) the activation and mail jar files from the /WEB-INF/lib folder to the /common/lib (Tomcat 5.5) or /lib (Tomcat 6) folder. For example:

   ```
   mv <JIRA-INSTALL>/WEB-INF/lib/activation-1.1.1.jar lib/; mv
   <JIRA-INSTALL>/WEB-INF/lib/mail-1.4.1.jar lib/
   ```

6. Add Gmail as a JNDI Resource in /conf/server.xml in-between JIRA's <Context>...</Context> (after line 49). Change your username and password:

```
<Resource name="mail/GmailSmtpServer"
auth="Container"
type="javax.mail.Session"
mail.smtp.host="smtp.gmail.com"
mail.smtp.port="465"
mail.smtp.auth="true"
mail.smtp.user="myusername@gmail.com"
password="mypassword"
mail.smtp.starttls.enable="true"
mail.smtp.socketFactory.class="javax.net.ssl.SSLSocketFactory"
/>
```

7. Restart JIRA so that the above changes are picked up by JIRA. Then, configure the SMTP server in JIRA's interface, use the JNDI setting. The proper value (if using the default example), is:

```
java:comp/env/mail/GmailSmtpServer
```

Configuring GMail for Incoming Mail (POP)

To use Gmail, for example, as a create and comment mail handler:

1. If you did not import the SSL certificate from Gmail for the SMTP server, refer to the instructions above.
2. Enable POP access in GMail's settings
3. Add a POP3 mail account

Configuring JIRA to Receive POP or IMAP Mail

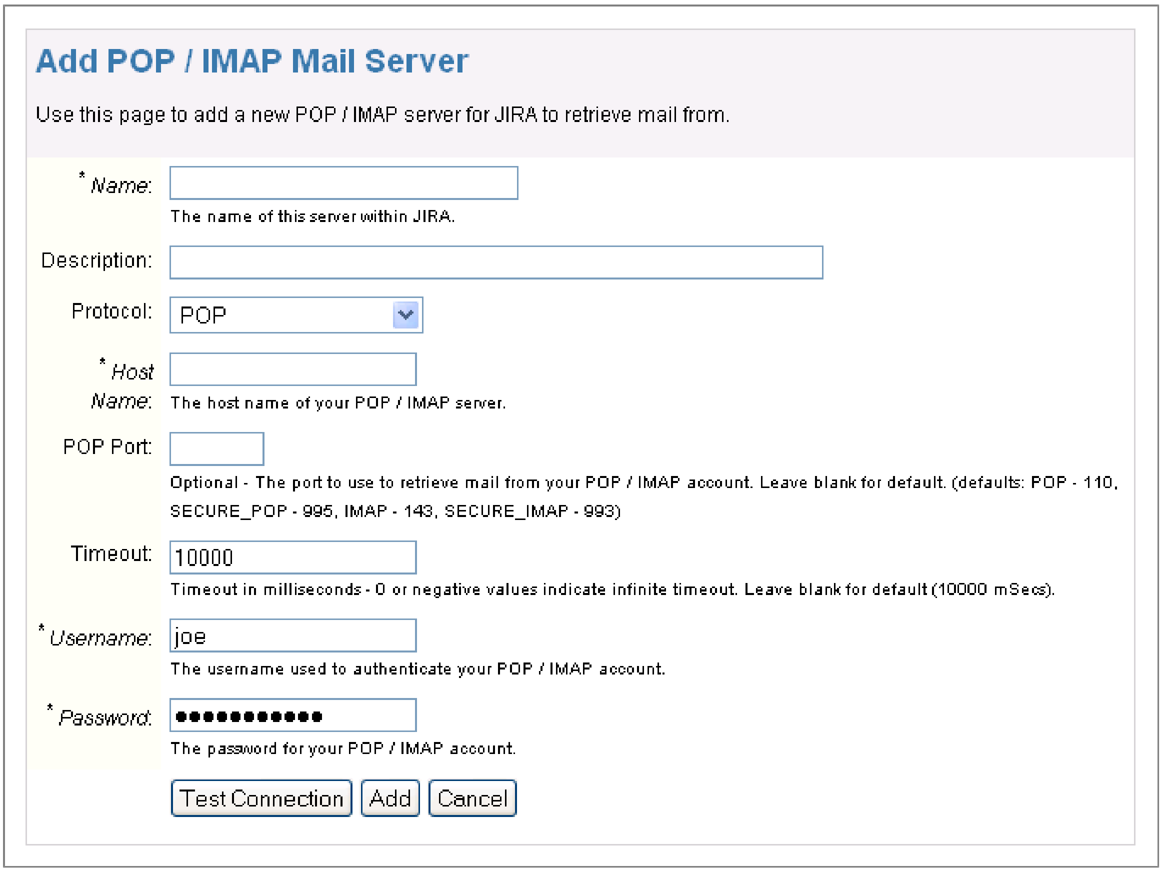
To enable JIRA to create comments and issues from email, you need to first configure JIRA to receive email via POP or IMAP as described below.

Adding a POP or IMAP Mail Server

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click "Mail Servers" in the left-hand column (under "Global Settings").
4. Click "Configure new POP / IMAP mail server".
5. This will display the "Add POP / IMAP Mail Server" screen (see below). Complete the fields as follows:

Name	An arbitrary name to associate with this email server configuration.
Description	(Optional) Email server description.
Protocol	Choose from POP, SECURE_POP, IMAP or SECURE_IMAP.
Host name	The subject of emails sent from this server will use this string as a prefix. This is useful for your users so that they can filter their email.
POP port	(Optional) The port to use to retrieve mail from your POP / IMAP account. Leave blank for default. Defaults are: POP: 110; SECURE_POP: 995; IMAP: 143; SECURE_IMAP: 993.
Timeout	Timeout (in milliseconds). 0 or negative values indicate infinite timeout. Leave blank for default (10000 mSecs).
Username	The username used to authenticate your POP / IMAP account.
Password	The password for your POP / IMAP account.

Screenshot: Add POP / IMAP Mail Server



Migrating from Other Issue Trackers

When migrating from other issue trackers, you may wish to take your data with you. Depending on what issue tracker you are migrating from, you are recommended to use one of the methods listed below to import data into JIRA:

Whichever method you use, you will need to reindex JIRA after you have imported.

If you have a user limited license (e.g. personal license), any users you import over and above your user limit will be created in JIRA without permission to log in to JIRA. You will not be able to select which of your users are assigned login permissions under the user limit, when you perform the import. However, you can change this after the users are imported, by editing user permissions.

1. Built-in importers

JIRA ships with the JIRA Importers Plugin pre-installed, so that you can easily import your bugs from Bugzilla, FogBugz or Mantis.

- Importing Data from Bugzilla
  Version 2.0 of the JIRA Importers Plugin is compatible with Bugzilla 2.20 to 3.6.4. Users of older Bugzilla versions will need to first upgrade the Bugzilla database tables to a supported version, using Bugzilla's `checksetup.pl` script. The JIRA Importers Plugin requires your Bugzilla database to be MySQL or PostgreSQL.
- Importing Data From Mantis
  Version 2.0 of the JIRA Importers Plugin is compatible with Mantis versions 1.1.8 to 1.2.4. The JIRA Importers Plugin requires your Mantis database to be MySQL or PostgreSQL. (The JIRA Importers Plugin has also been reported to work with MS SQL, Oracle and DB2, but it has not been tested against these databases.)
- Importing Data From FogBugz
  Version 2.0 of the JIRA Importers Plugin is compatible with Fogbugz versions 7.3.6 to 8.2.27. The JIRA Importers Plugin requires your FogBugz database to be MySQL or MS SQL or MS SQL Express.

2. CSV Importer

If you are migrating from a system for which JIRA does not provide a built-in importer, you may be able to import your data into JIRA via CSV format instead. Your system must be able to export your data into a CSV (comma-separated value) file. You can then import the CSV file into JIRA using JIRA's CSV importer:

- Importing Data From CSV

There is also a workaround for importing comments.

3. Third-party scripts

A number of third-party scripts are available on the Internet that support the importing of data into JIRA. These may be a better option for importing data than using the CSV importer.
Third-party scripts are currently available for the following import processes:

- Importing data from Trac into JIRA
- Migrating Trac to JIRA
- yet another Trac 2 JIRA import

> **Please note, third-party scripts are not supported by Atlassian.**
> The Atlassian forums may provide helpful information on the third-party scripts that you wish to use.

4. Jelly script

Another approach is to write a Jelly script that will import your data. JIRA ships with some Jelly tags that make operations like creating issues in JIRA easy.

5. RPC services

JIRA ships with an RPC plugin which enables limited remote access to JIRA. It is available through SOAP and XML-RPC interfaces. We recommend using the SOAP interface when possible as it is more complete and will be our primary focus in the future. The JIRA RPC Services page provides a starting point for all your remote procedure call needs.

The full source of the plugin is available and you are free to modify and the extend the source. We'd also be happy to accept code contributions to the project, as Simon Mittag has done in the past. Check out the RPC Endpoint Plugin Module for more information.

6. Your own method

It is possible to use whatever tools you feel comfortable with, to import the data directly into JIRA's database. JIRA's database schema is described in XML format in the `WEB-INF/classes/entitydefs/entitymodel.xml` file under the JIRA web application. When using this approach please take care to maintain database integrity.

See also:

- Ask for help on the JIRA Development Forum.
- ClearQuest Import Forums Discussion
- Commercial migrations by Atlassian Partners. A number of partners (Consulting Toolsmiths and others) have provided custom migrations from Remedy, TeamTrack, ClearQuest, GNATS and Bugzilla in the past.
- Comparison of JIRA with other issue trackers
- Migrating Unfuddle tickets to JIRA

Importing Data From FogBugz

On this page:

- About importing from FogBugz
- How to import from FogBugz

About importing from FogBugz

JIRA ships with the JIRA Importers Plugin pre-installed, so that you can easily import your bugs from FogBugz. Version 2.0 of the JIRA Importers Plugin is compatible with Fogbugz versions 7.3.6 to 8.2.27. The JIRA Importers Plugin requires your FogBugz database to be MySQL or MS SQL or MS SQL Express.

For the very latest version of the JIRA Importers Plugin, please visit plugins.atlassian.com.

The import process consists of:

1. **Running the Import Wizard to configure the import process and save it into a configuration file.** (Note that you can edit your configuration file later by by re-running the Import Wizard and providing the name of your existing configuration file.)
2. **Configuring the connection from your JIRA server to the FogBugz database.**
3. **Running the import using your saved configuration file.** You will typically do this several times (e.g. once or more for tests, once for production).

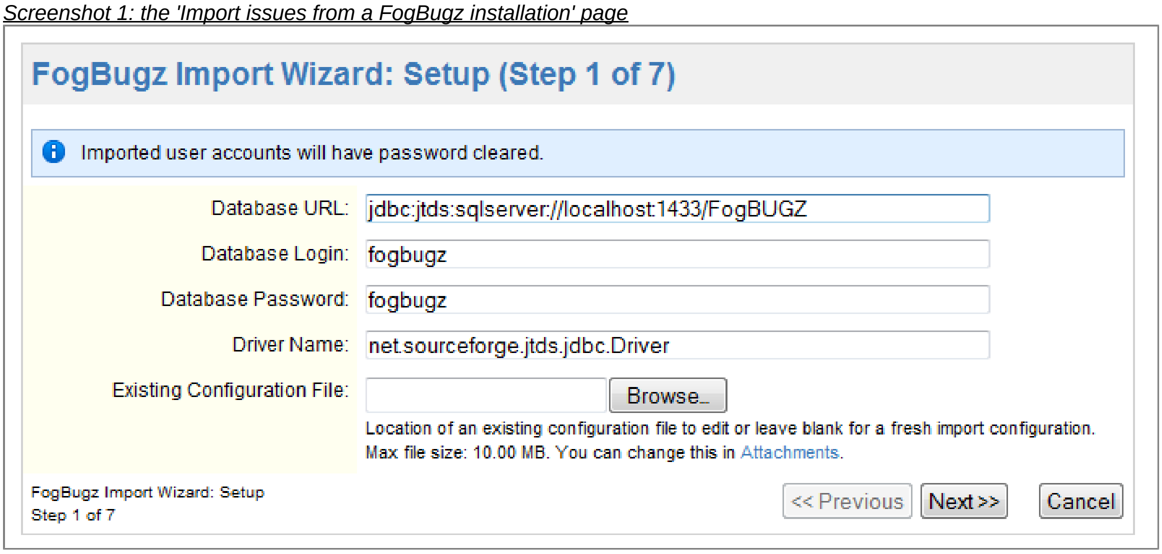
These steps are described in more detail below.

During the import process, the following data is copied from the FogBugz database into JIRA:

In FogBugz	In JIRA	Import Notes

Project	Project	FogBugz data is imported on a per-project basis. You can either specify an existing JIRA project as the target, or the importer will automatically create a project(s) for you at time of import. (For more information about JIRA projects, please see Defining a Project.)
Area	Component	You can choose to have the importer automatically create your FogBugz components in JIRA, or choose to have bugs imported into no component in JIRA.
Milestone	Fix Version	Versions are imported from FogBugz (if you choose). After importing, you can manually set appropriate versions to the Released state in JIRA if you wish.
Case	Issue	Every FogBugz case becomes a JIRA issue.
Case ID ixBug	Bug Import ID	Each imported issue ('case') will be given a new JIRA ID, and the old FogBugz ID will be saved into a JIRA custom field called 'Bug Import ID'. This custom field is searchable, so you can search for JIRA issues by their old FogBugz ID. The field links to the original FogBugz bug URL, if you configure 'URL to FogBugz' in jira-application.properties. The custom field can also be made to display just the FogBugz ID (unlinked) in jira-application.properties. If you don't need this custom field, delete it or 'hide' it (as described in Specifying Field Behaviour).
Summary	Summary	
Comments	Comments	FogBugz allows for links to other issues to be automatically generated by using the format "bug issueId" or "case issue id". After import, any string matching this pattern will be rewritten to their new JIRA key. For example, a comment "Please see case 100" may be rewritten to "Please see IMP-100".
Attachments	Attachments	Attachments are extracted from the FogBugz database and saved to disk. Any e-mail issues will be parsed for attachments and the e-mail text saved as a comment. The dates and user attaching the attachments will be retained.To specify the location on disk, see Configuring File Attachments.
Category	Issue Type	You can configure mapping of specific Case Categories to specific Issue Types.
Priority	Priority	You can configure mapping of specific FogBugz values to specific JIRA values.
Status	Status	You can configure mapping of specific FogBugz values to specific JIRA values, provided you create your workflows in JIRA before running the importer. • The JIRA '**Status**' field is integral to JIRA workflow. To learn more, please see What is Workflow. • To create a **JIRA workflow**, please see Configuring Workflow. • To create a **JIRA workflow scheme** (which you can then associate with appropriate projects and Issue Types), please see Activating Workflow.
Resolution	Resolution	You can configure mapping of specific FogBugz values to specific JIRA values.
Duplicates BugRelations	Links	You can configure mapping of specific FogBugz link types to JIRA link types. • In JIRA, you can configure different types of links (please see Configuring Issue Linking).
Computer	Computer	The FogBugz Computer field is imported into a JIRA Custom Field called 'Computer'.
Customer Email	Customer Email	The FogBugz Customer Email field is imported into a JIRA Custom Field called 'Customer Email'.
User	User	You can choose to have the importer automatically create JIRA users for any FogBugz users who do not already exist in JIRA. • Users who interacted with the FogBugz system will be created as active accounts in JIRA. Other users will be imported into a special group called "fogbugz-import-unused-users" and will be deactivated. • Passwords from FogBugz are not imported (as they are hashed in the database). Users from FogBugz will need to get their passwords emailed to them the first time they log into JIRA. • Users with no real name stored in FogBugz will get the portion of their email address (login name) before the "@" character as their Full Name in JIRA. • If you don't specify any particular mappings, the user name will be created from the first letter of the first name and the last name, all in lowercase. • If you are using External User Management, the import process will not be able to create JIRA users; instead, the importer will give you a list of any new users that need to be created. You will need to create the users in your external user repository before commencing the import. • If you have a user-limited license (e.g. personal license), and the number of required users is larger than the limit, then the import will be stopped. A page will be displayed showing a list of users that can't be created.
Other fields	Custom fields	If your FogBugz system contains any custom fields, you can choose to map them to specific JIRA custom field(s). If your custom fields don't yet exist in JIRA, the importer can automatically create them for you.

How to import from FogBugz

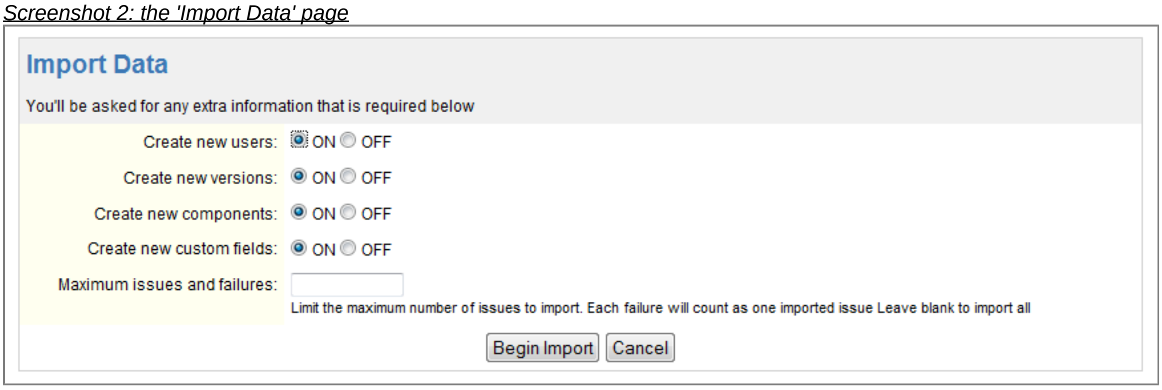
1. Before you begin, please backup your JIRA data.
2. In JIRA's default permission scheme (associated with newly created projects), ensure that the 'Browse', 'Create' and 'Comment' permissions are granted to the group 'jira-users' (or a group with the 'JIRA Users' global permission).
3. Log in to JIRA as a user with the **'JIRA System Administrators'** global permission.
4. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
5. On the panel on the left, under the title '**Import & Export**', click '**External System Import**'. Then select '**FogBugz**'.
6. The '**Import issues from a FogBugz installation**' page will be displayed:
   Screenshot 1: the 'Import issues from a FogBugz installation' page
   

7. If you don't yet have a configuration file (or if you want to create a new one, or update the one you have), leave the '**Existing Configuration File**' field blank and click '**Next**' to create a new Configuration File:
   - **Project Key Mappings:** For each FogBugz project that you wish to import into JIRA, select the JIRA '**Project category**' (if applicable) and the JIRA '**Project key**'.
     - To import into an existing JIRA project, type a project key (or project name) that already exists in JIRA.
       There is no warning or error message if you select an existing key (or existing project name with a different key). The importer will import issues to the project specified by the key (or project name).
     - To create a new JIRA project and import into it, type a project key that does not yet exist in JIRA.
       The JIRA '**Project key**' will be the prefix for the IDs of all issues in the given project.
   - **Custom Fields:** If your FogBugz system contains any custom fields, you can either choose the JIRA custom field to which they will be mapped, or choose to have the importer automatically create a new custom field(s) in JIRA.
     Regardless of whether you specify mapping, the importer will automatically create a JIRA custom field for each extra FogBugz field, unless you un-check the '**Create new custom fields**' option on the final '**Import Data**' screen (see *Screenshot 2* below).
   - **Field Value Mappings:**
     - **'Priority' field** — If you don't specify mappings, the importer will automatically create missing values in JIRA and will ensure that the issues are migrated with the correct priority (e.g. "Normal" in FogBugz to newly-created "Normal" in JIRA).
     - **Usernames** — If you don't specify mapping, the importer will automatically map FogBugz usernames to JIRA usernames (lowercase).
       Regardless of whether you specify mapping, JIRA will automatically create usernames for missing users unless you un-check the '**Create new users**' option on the final '**Import Data**' screen (see *Screenshot 2* below).
     - **'Status' field** — It is mandatory to map the FogBugz '**Status**' field to specific values of the JIRA '**Status**' field, as the JIRA '**Status**' field is integral to JIRA workflow (to learn more, please see What is Workflow and Configuring Workflow).
     - **'Resolution' field** — If you don't specify mapping, the importer will create corresponding Resolutions in JIRA instead of using the existing ones.
   - **Link Types:** To learn more about JIRA link types, please see Configuring Issue Linking.
8. Configure the connection details to your FogBugz database as follows:
   - **FogBugz URL** — the URL of your FogBugz instance.
   - **FogBugz Login** — the FogBugz user to use during the import.
   - **FogBugz Password** — the password of the FogBugz user to use during the import.
   - **Database URL** — the location of the FogBugz database server. Enter this in the following format:

     ```
     jdbc:mysql:host[:port]/databasename?parameters
     ```

     - **host** — the server hosting the FogBugz database. You can specify which incoming TCP connections to allow by using the **port** parameter (defaults to 3306).
     - **databasename** — the name of the FogBugz database (usually 'bugtracker').
       The database name can usually be found in the registry. Documentation is at http://bugs.movabletype.org/help/topics/setup/WindowsWhatSetupDoes.html (search for Initialize Registry Settings).
   - **Database Login** — the database user that JIRA will use to access the FogBugz database.
     Ensure that this account can access your FogBugz database from the machine where JIRA is running.

- **Database Password** — the password of the database user that JIRA will use to access the FogBugz database.
- **Driver Name** — The fully qualified name of the base class of the JDBC driver to use:
  - "com.mysql.jdbc.Driver" for MySQL.
  - "org.postgresql.Driver" for PostgreSQL.

9. The '**Import Data**' page will be displayed:
   Screenshot 2: the 'Import Data' page
   

   - '**Create new users**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new usernames for Mantis users who do not already exist in JIRA.
   - '**Create new versions**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new versions for FogBugz '**backlogs**' which do not already exist in JIRA.
   - '**Create new components**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new components for FogBugz components (areas) which do not already exist in JIRA.
   - '**Create new custom fields**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create custom fields for FogBugz fields which do not have a corresponding field in JIRA.
   - '**Maximum issues and failues**' — If you wish, specify a maximum number of failed issues after which the importer will stop. If you want the import to continue regardless of any failures, leave this field blank. If your Mantis instance has a large number of issues, it's generally a good idea to run first the importer on a limited number of issues (e.g. 100), then manually inspect the imported issues to confirm whether your configuration file was specified correctly. When the results are satisfactory, you can run the import with no limit.
10. The importer will display updates as the import progresses, then a success message when the import is complete.

Congratulations, you have successfully imported your FogBugz projects into JIRA! If you have any questions or encounter any problems, please contact Atlassian support.

Importing Data From Mantis

On this page:

- About importing from Mantis
- How to import from Mantis

About importing from Mantis

JIRA ships with the JIRA Importers Plugin pre-installed, so that you can import your bugs from Mantis. Version 2.0 of the JIRA Importers Plugin is compatible with Mantis versions 1.1.8 to 1.2.4. The JIRA Importers Plugin requires your Mantis database to be MySQL or PostgreSQL. (The JIRA Importers Plugin has also been reported to work with MS SQL, Oracle and DB2, but it has not been tested against these databases.)

For the very latest version of the JIRA Importers Plugin, please visit plugins.atlassian.com.

The import process consists of:

1. **Running the Import Wizard to configure the import process and save it into a configuration file.** (Note that you can edit your configuration file later by by re-running the Import Wizard and providing the name of your existing configuration file.)
2. **Configuring the connection from your JIRA server to the Mantis database.**
3. **Running the import using your saved configuration file.** You will typically do this several times (e.g. once or more for tests, once for production).

These steps are described in more detail below.

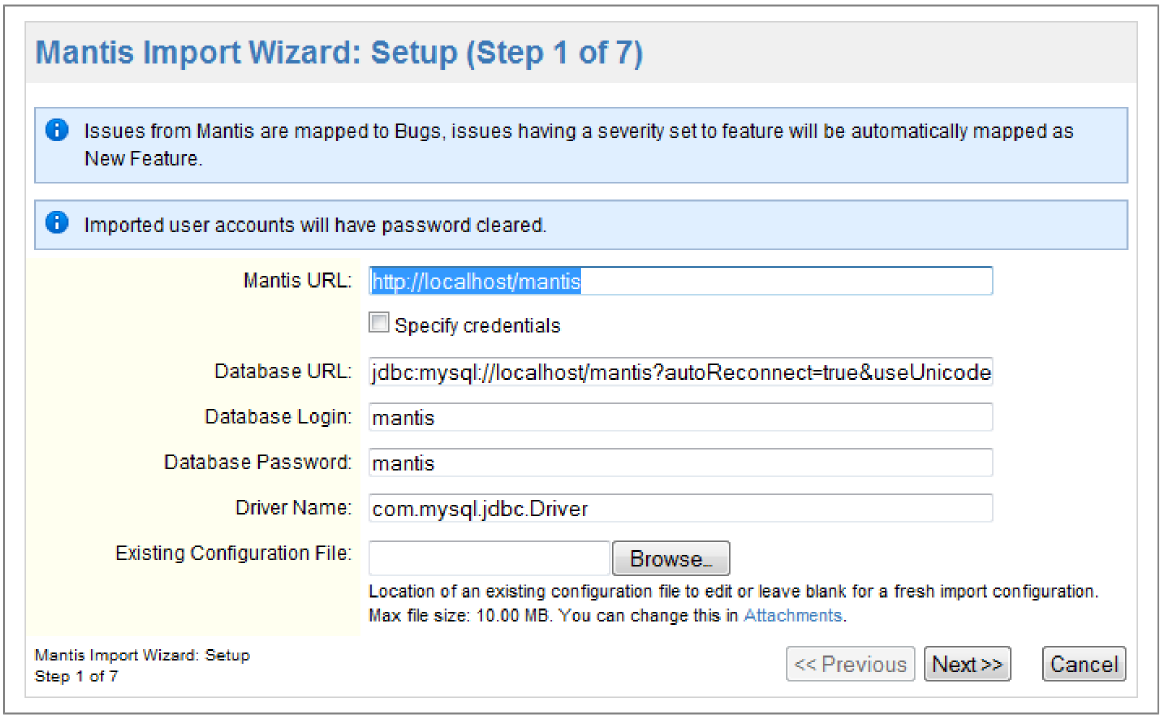
During the import process, the following data is copied from the Mantis database into JIRA:

In Mantis	In JIRA	Import Notes
Project Sub Project	Project	Mantis data is imported on a per-project basis. You can either specify an existing JIRA project as the target, or the importer will automatically create a project(s) for you at time of import. (For more information about JIRA projects, please see Defining a Project.)
Category	Component	You can choose to have the importer automatically create your Mantis components in JIRA, or choose to have bugs imported into no component in JIRA.

Version	Fix Version	Versions are imported from Mantis (if you choose). After importing, you can manually set appropriate versions to the Released state in JIRA if you wish.
Bug	Issue	Every Mantis bug becomes a JIRA issue of type 'Bug'.
ID	Bug Import ID	Each imported issue will be given a new JIRA ID, and the old Mantis ID will be saved into a JIRA custom field called 'Bug Import ID'. This custom field is searchable, so you can search for JIRA issues by their old Mantis ID. The field links to the original Mantis bug URL, if you configure 'URL to Mantis' in jira-application.properties. The custom field can also be made to display just the Mantis ID (unlinked) in jira-application.properties. If you don't need this custom field, delete it or 'hide' it (as described in Specifying Field Behaviour).
Summary	Summary	
Description	Description	Within text, Mantis links (e.g. #1234) are converted to JIRA links (e.g. TST-123).
Comments	Comments	Within text, Mantis links (e.g. #1234) are converted to JIRA links (e.g. TST-123).
Attachments	Attachments	Attachments are extracted from the Mantis database and saved to disk. To specify the location on disk, see Configuring File Attachments.
Priority	Priority	You can configure mapping of specific Mantis values to specific JIRA values.
Status	Status	You can configure mapping of specific Mantis values to specific JIRA values, provided you create your workflows in JIRA before running the importer. • The JIRA '**Status**' field is integral to JIRA workflow. To learn more, please see What is Workflow. • To create a **JIRA workflow**, please see Configuring Workflow. • To create a **JIRA workflow scheme** (which you can then associate with appropriate projects and Issue Types), please see Activating Workflow.
Resolution	Resolution	You can configure mapping of specific Mantis values to specific JIRA values.
Relationships	Links	You can configure mapping of specific Mantis relationship types to JIRA link types. • In JIRA, you can configure different types of links (please see Configuring Issue Linking).
CC List	Watchers	
User	User	You can choose to have the importer automatically create JIRA users for any Mantis users who do not already exist in JIRA. • Users who interacted with the Mantis system will be created as active accounts in JIRA. Other users will be imported into a special group called "mantis-import-unused-users" and will be deactivated. • Passwords from Mantis are not imported (as they are hashed in the database). Users from Mantis will need to get their passwords emailed to them the first time they log into JIRA. • Users with no real name stored in Mantis will get the portion of their email address (login name) before the "@" character as their Full Name in JIRA. • If you are using External User Management, the import process will not be able to create JIRA users; instead, the importer will give you a list of any new users that need to be created. You will need to create the users in your external user repository before commencing the import. • If you have a user-limited license (e.g. personal license), and the number of required users is larger than the limit, then the import will be stopped. A page will be displayed showing a list of users that can't be created.
Other fields	Custom fields	If your Mantis system contains any custom fields, you can choose to map them to specific JIRA custom field(s). If your custom fields don't yet exist in JIRA, the importer can automatically create them for you.

How to import from Mantis

1. Before you begin, please backup your JIRA data.
2. In JIRA's default permission scheme (associated with newly created projects), ensure that the 'Browse', 'Create' and 'Comment' permissions are granted to the group 'jira-users' (or a group with the 'JIRA Users' global permission).
3. Log in to JIRA as a user with the **'JIRA System Administrators'** global permission.
4. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
5. On the panel on the left, under the title '**Import & Export**', click '**External System Import**'. Then select '**Mantis**'.
6. The '**Import issues from a Mantis installation**' page will be displayed:
   Screenshot 1: the 'Import issues from a Mantis installation' page



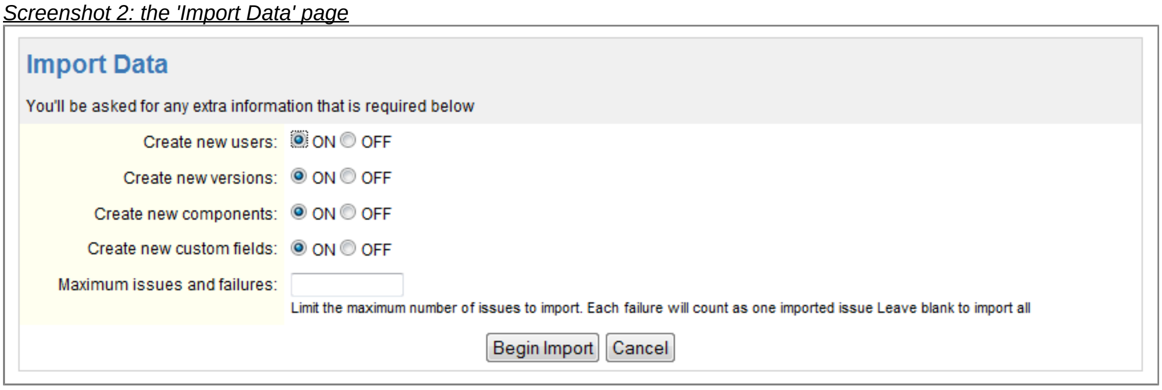
7. If you don't yet have a configuration file (or if you want to create a new one, or update the one you have), leave the '**Existing Configuration File**' field blank and click '**Next**' to create a new Configuration File:
    - **Project Key Mappings:** For each Mantis project that you wish to import into JIRA, select the JIRA '**Project category**' (if applicable) and the JIRA '**Project key**'.
        - To import into an existing JIRA project, type a project key (or project name) that already exists in JIRA.
          There is no warning or error message if you select an existing key (or existing project name with a different key). The importer will import issues to the project specified by the key (or project name).
        - To create a new JIRA project and import into it, type a project key that does not yet exist in JIRA.
          The JIRA '**Project key**' will be the prefix for the IDs of all issues in the given project.
    - **Custom Fields:** If your Mantis system contains any custom fields, you can either choose the JIRA custom field to which they will be mapped, or choose to have the importer automatically create a new custom field(s) in JIRA.
      Regardless of whether you specify mapping, the importer will automatically create a JIRA custom field for each extra Mantis field, unless you un-check the '**Create new custom fields**' option on the final '**Import Data**' screen (see *Screenshot 2* below).
    - **Field Value Mappings:**
        - **'Priority' field** — If you don't specify mappings, the importer will automatically create missing values in JIRA and will ensure that the issues are migrated with the correct priority (e.g. "Normal" in Mantis to newly-created "Normal" in JIRA).
        - **Usernames** — If you don't specify mapping, the importer will automatically map Mantis usernames to JIRA usernames (lowercase).
          Regardless of whether you specify mapping, JIRA will automatically create usernames for missing users unless you un-check the '**Create new users**' option on the final '**Import Data**' screen (see *Screenshot 2* below).
        - **'Status' field** — It is mandatory to map the Mantis '**Status**' field to specific values of the JIRA '**Status**' field, as the JIRA '**Status**' field is integral to JIRA workflow (to learn more, please see What is Workflow and Configuring Workflow).
        - **'Resolution' field** — If you don't specify mapping, the importer will create corresponding Resolutions in JIRA instead of using the existing ones.
    - **Link Types:** To learn more about JIRA link types, please see Configuring Issue Linking.
8. Configure the connection details to your Mantis database as follows:
    - **Mantis URL** — the URL of your Mantis instance.
    - **Mantis Login** — the Mantis user to use during the import.
    - **Mantis Password** — the password of the Mantis user to use during the import.
    - **Database URL** — the location of the Mantis MySQL database server. Enter this in the following format:

```
jdbc:mysql:host[:port]/databasename?parameters
```

        - **host** — the server hosting the Mantis MySQL database. You can specify which incoming TCP connections to allow by using the **port** parameter (defaults to 3306).
        - **databasename** — the name of the Mantis MySQL database (usually 'bugtracker').
          The database name, username and user password can usually be found in the Mantis file 'config_inc.php' (the default username is "root", default password is empty). See also http://www.mantisbt.org/manual/manual.configuration.database.php
    - **Database Login** — the database user that JIRA will use to access the Mantis database.
      Ensure that this account can access your Mantis database from the machine where JIRA is running.
    - **Database Password** — the password of the database user that JIRA will use to access the Mantis database.
    - **Driver Name** — The fully qualified name of the base class of the JDBC driver to use.:

- "com.mysql.jdbc.Driver" for MySQL.
- "org.postgresql.Driver" for PostgreSQL.

9. The '**Import Data**' page will be displayed:
Screenshot 2: the 'Import Data' page



- '**Create new users**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new usernames for Mantis users who do not already exist in JIRA.
- '**Create new versions**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new versions for Mantis '**milestones**' which do not already exist in JIRA.
- '**Create new components**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new components for Mantis components (categories) which do not already exist in JIRA.
- '**Create new custom fields**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create custom fields for Mantis fields which do not have a corresponding field in JIRA.
- '**Maximum issues and failues**' — If you wish, specify a maximum number of failed issues after which the importer will stop. If you want the import to continue regardless of any failures, leave this field blank. If your Mantis instance has a large number of issues, it's generally a good idea to run first the importer on a limited number of issues (e.g. 100), then manually inspect the imported issues to confirm whether your configuration file was specified correctly. When the results are satisfactory, you can run the import with no limit.

10. The importer will display updates as the import progresses, then a success message when the import is complete.

Congratulations, you have successfully imported your Mantis projects into JIRA! If you have any questions or encounter any problems, please contact Atlassian support.

Importing Data from Bugzilla

On this page:

- About importing from Bugzilla
- How to import from Bugzilla

About importing from Bugzilla

JIRA ships with the JIRA Importers Plugin pre-installed, so that you can easily import your bugs from Bugzilla. Version 2.0 of the JIRA Importers Plugin is compatible with Bugzilla 2.20 to 3.6.4. Users of older Bugzilla versions will need to first upgrade the Bugzilla database tables to a supported version, using Bugzilla's `checksetup.pl` script. The JIRA Importers Plugin requires your Bugzilla database to be MySQL or PostgreSQL.

For the very latest version of the JIRA Importers Plugin, please visit plugins.atlassian.com.

Please Note: JIRA's character encoding is set to UTF-8 by default. If, however, your JIRA installation's character encoding is set to something other than UTF-8, you may encounter problems with importing data from Bugzilla. For more information, please refer to JRA-14432. Importing Bugzilla data into a non-UTF-8 JIRA installation is not supported.

The import process consists of:

1. **Running the Import Wizard to configure the import process and save it into a configuration file.** (Note that you can edit your configuration file later by by re-running the Import Wizard and providing the name of your existing configuration file.)
2. **Configuring the connection from your JIRA server to the Bugzilla database.**
3. **Running the import using your saved configuration file.** You will typically do this several times (e.g. once or more for tests, once for production).

These steps are described in more detail below.

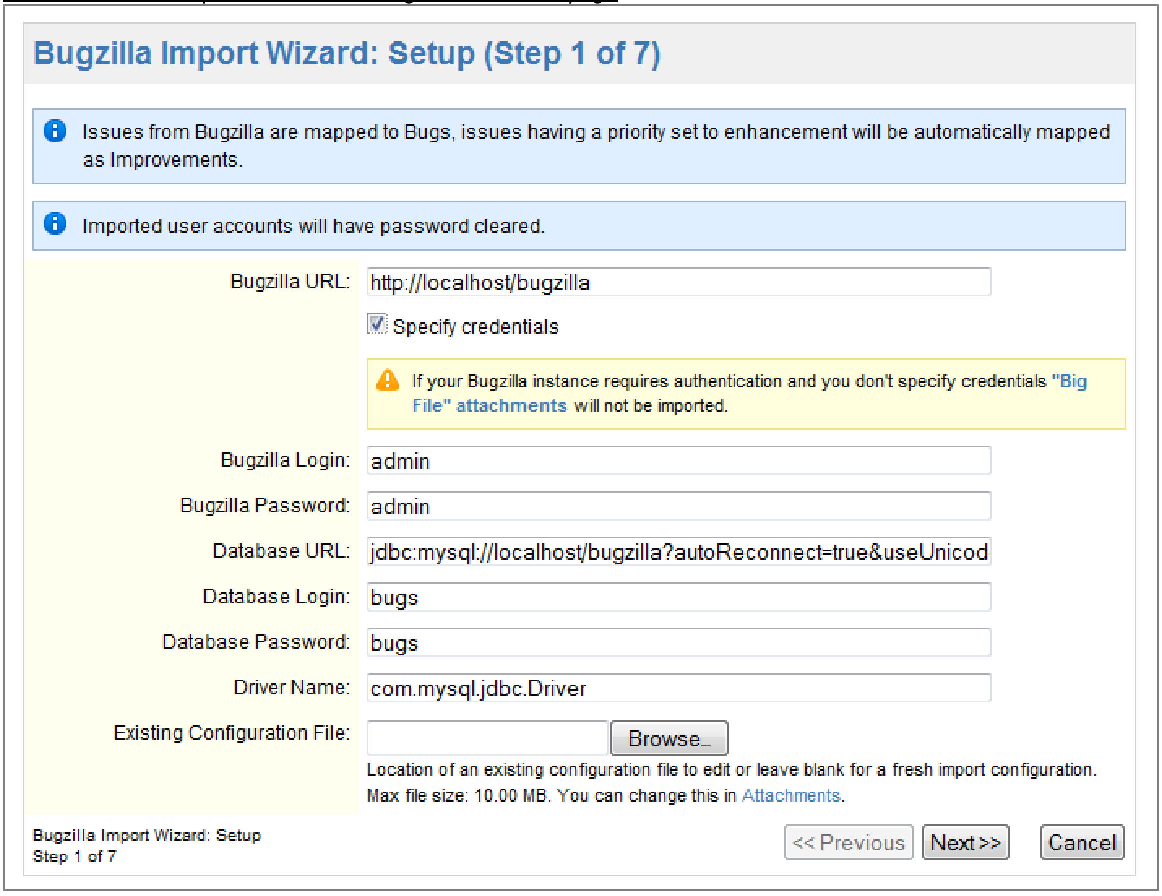
During the import process, the following data is copied from the Bugzilla database into JIRA:

In Bugzilla	In JIRA	Import Notes

Product	Project	Bugzilla data is imported on a per-project basis. You can either specify an existing JIRA project as the target, or the importer will automatically create a project(s) for you at time of import. (For more information about JIRA projects, please see Defining a Project.)
External Project	Project Category	
Component	Component	You can choose to have the importer automatically create your Bugzilla component(s) in JIRA, or choose to have bugs imported into no component in JIRA.
Milestone	Fix Version	Versions are imported from Bugzilla (if you choose), and are set to the Un-Released and Un-Archived state.
Bug	Issue	Every Bugzilla bug becomes a JIRA issue of type 'Bug', with one exception: a Bugzilla issue with severity 'Enhancement' becomes a JIRA issue of type 'Improvement' and priority 'Major'.
ID	Bugzilla ID	Each imported issue will be given a new JIRA ID, and the old Bugzilla ID will be saved into a JIRA custom field called 'Bugzilla ID'. This custom field is searchable, so you can search for JIRA issues by their old Bugzilla ID. There is also a gadget which lets you search by Bugzilla ID. The field links to the original Bugzilla bug URL, if you configure 'URL to Bugzilla' in jira-application.properties. The custom field can also be made to display just the Bugzilla ID (unlinked) in jira-application.properties. If you don't need this custom field, delete it or 'hide' it (as described in Specifying Field Behaviour).
Summary	Summary	
Description	Description	
Comments	Comments	
Attachments	Attachments	Attachments are extracted from the Bugzilla database and saved to disk. To specify the location on disk, see Configuring File Attachments.
Severity	Priority	You can configure mapping of specific Bugzilla values to specific JIRA values.
Status	Status	You can configure mapping of specific Bugzilla values to specific JIRA values. • The JIRA '**Status**' field is integral to JIRA workflow. To learn more, please see What is Workflow and Configuring Workflow.
Resolution	Resolution	You can configure mapping of specific Bugzilla values to specific JIRA values.
Duplicates Depends on Blocks	Link	You can configure mapping of specific Bugzilla link types to JIRA link types. • In JIRA, you can configure different types of links (please see Configuring Issue Linking).
Work History	Work Log	Each Bugzilla worklog report will appear in JIRA as a separate worklog entry.
Estimated	Original Estimate	See Configuring Time Tracking.
Remaining	Remaining Estimate	See Configuring Time Tracking.
Logged	Time Spent	See Configuring Time Tracking.
Votes	Voters	If a user has voted one or more times for a Bugzilla issue, a JIRA vote is stored for that user.
CC List	Watchers	
User	User	You can choose to have the importer automatically create JIRA users for any Bugzilla users who do not already exist in JIRA. • Users who interacted with the Bugzilla system will be created as active accounts in JIRA. Other users will be imported into a special group called "bugzilla-import-unused-users" and will be deactivated. • Passwords from Bugzilla are not imported for v2.16+ of Bugzilla (as they are hashed in the database). Users from Bugzilla will need to get their passwords emailed to them the first time they log into JIRA. • Users with no real name stored in Bugzilla will get the portion of their email address (login name) before the "@" character as their Full Name in JIRA. • If you are using External User Management, the import process will not be able to create JIRA users; instead, the importer will give you a list of any new users that need to be created. You will need to create the users in your external user repository before commencing the import (this way, votes etc can be imported correctly). • If you have a user-limited license (e.g. personal license), and the number of required users is larger than the limit, then the import will be stopped. A page will be displayed showing a list of users that can't be created.

Other fields	Custom fields	If your Bugzilla system contains any custom fields, you can choose to map them to specific JIRA custom field(s). If your custom fields don't yet exist in JIRA, the importer can automatically create them for you.	

How to import from Bugzilla

1. Before you begin, please backup your JIRA data.
2. In your Bugzilla system, run the Bugzilla 'Sanity Check' to ensure your data is error-free.
3. In JIRA's default permission scheme (associated with newly created projects), ensure that the 'Browse', 'Create' and 'Comment' permissions are granted to the group 'jira-users' (or a group with the 'JIRA Users' global permission).
4. Log in to JIRA as a user with the **'JIRA System Administrators'** global permission.
5. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
6. On the panel on the left, under the title '**Import & Export**', click '**External System Import**'. Then select '**Bugzilla**'.
7. The '**Import issues from a Bugzilla installation**' page will be displayed:
   Screenshot 1: the 'Import issues from a Bugzilla installation' page
   

8. If you don't yet have a configuration file (or if you want to create a new one, or update the one you have), leave the '**Existing Configuration File**' field blank and click '**Next**' to create a new Configuration File:
   - **Project Key Mappings:** For each Bugzilla project that you wish to import into JIRA, select the JIRA '**Project category**' (if applicable) and the JIRA '**Project key**'.
     - To import into an existing JIRA project, type a project key (or project name) that already exists in JIRA.
       There is no warning or error message if you select an existing key (or existing project name with a different key). The importer will import issues to the project specified by the key (or project name).
     - To create a new JIRA project and import into it, type a project key that does not yet exist in JIRA.
       The JIRA '**Project key**' will be the prefix for the IDs of all issues in the given project.
   - **Custom Fields:** If your Bugzilla system contains any custom fields, you can either choose the JIRA custom field to which they will be mapped, or choose to have the importer automatically create a new custom field(s) in JIRA.
     Regardless of whether you specify mapping, the importer will automatically create a JIRA custom field for each extra Bugzilla field, unless you un-check the'**Create new custom fields**' option on the final '**Import Data**' screen (see *Screenshot 2* below).
   - **Field Value Mappings:**
     - **'Priority' field** — If you don't specify mappings, the importer will automatically create missing values in JIRA and will ensure that the issues are migrated with the correct priority (e.g. "Normal" in Bugzilla to newly-created "Normal" in JIRA).
     - **Usernames** — If you don't specify mapping, the importer will automatically map Bugzilla usernames to JIRA usernames (lowercase).
       Regardless of whether you specify mapping, JIRA will automatically create usernames for missing users unless you un-check the'**Create new users**' option on the final '**Import Data**' screen (see *Screenshot 2* below).
     - **'Status' field** — It is mandatory to map the Bugzilla '**bug_status**' field to specific values of the JIRA '**Status**' field, as the JIRA '**Status**' field is integral to JIRA workflow (to learn more, please see What is Workflow and Configuring

Workflow).
- **'Resolution' field** — If you don't specify mapping, the importer will create corresponding Resolutions in JIRA instead of using the existing ones.
- **Link Types:** To learn more about JIRA link types, please see Configuring Issue Linking.

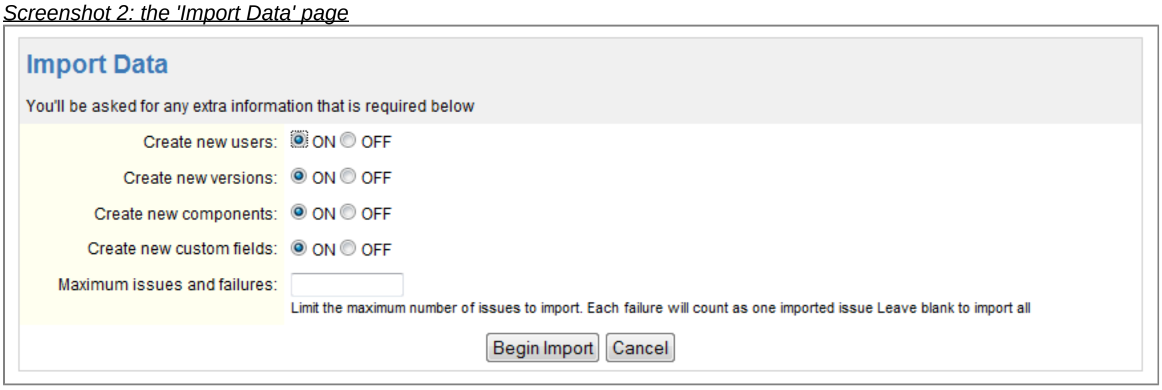
9. Configure the connection details to your Bugzilla database as follows:
   - **Bugzilla URL** — the URL of your Bugzilla instance.
   - **Specify credentials** — tick this box to show/hide the **Bugzilla Login** and **Bugzilla Password** fields. Note that if your Bugzilla instance requires authentication and you don't specify credentials, Bugzilla "Big File" attachments will not be imported.
   - **Bugzilla Login** — the Bugzilla user to use during the import.
   - **Bugzilla Password** — the password of the Bugzilla user to use during the import.
   - **Database URL** — the location of the Bugzilla My SQL database server. Enter this in the following format:

     ```
     jdbc:mysql:host[:port]/databasename?parameters
     ```

     - **host** — the server hosting the Bugzilla MySQL database. You can specify which incoming TCP connections to allow by using the **port** parameter (defaults to 3306).
     - **databasename** — the name of the Bugzilla MySQL database (usually 'bugs').

       The database name, username and user password can usually be found in the 'localconfig' file in Bugzilla's root directory, or in /etc/bugzilla/.
   - **Database Login** — the database user that JIRA will use to access the Bugzilla database.

     Ensure that this account can access your Bugzilla database from the machine where JIRA is running.
   - **Database Password** — the password of the database user that JIRA will use to access the Bugzilla database.
   - **Driver Name** — The fully qualified name of the base class of the JDBC driver to use.:
     - "com.mysql.jdbc.Driver" for MySQL.
     - "org.postgresql.Driver" for PostgreSQL.
10. The '**Import Data**' page will be displayed:
    Screenshot 2: the 'Import Data' page



   - '**Create new users**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new usernames for Bugzilla users who do not already exist in JIRA.
   - '**Create new versions**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new versions for Bugzilla '**milestones**' which do not already exist in JIRA.
   - '**Create new components**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new components for Bugzilla components which do not already exist in JIRA.
   - '**Create new custom fields**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create custom fields for Bugzilla fields which do not have a corresponding field in JIRA.
   - '**Maximum issues and failues**' — If you wish, specify a maximum number of failed issues after which the importer will stop. If you want the import to continue regardless of any failures, leave this field blank. If your Bugzilla instance has a large number of issues, it's generally a good idea to run first the importer on a limited number of issues (e.g. 100), then manually inspect the imported issues to confirm whether your configuration file was specified correctly. When the results are satisfactory, you can run the import with no limit.
11. The importer will display updates as the import progresses, then a success message when the import is complete.

Congratulations, you have successfully imported your Bugzilla projects into JIRA! If you have any questions or encounter any problems, please contact Atlassian support.

Importing Data From CSV

- About importing from CSV
  - Valid file format
  - CSV file encoding
- How to import from CSV

About importing from CSV

JIRA ships with the JIRA Importers Plugin pre-installed, so that you can import your data from a comma-separated (CSV) file, which is a format supported by most applications (e.g. Microsoft Excel).

> ⚠ Please note that there a number of import methods available for importing data into JIRA from other issue tracking systems. It may be more appropriate to use a method other than the CSV importer, depending on what system you are importing data from. Details on other methods of importing data are available here.

The CSV import process consists of:

1. **Preparing your CSV file** — see below.
2. **Running the Import Wizard** — see below. You can choose to map individual fields and field values during the import process.

During the import process, the following data is copied from your CSV file into JIRA:

JIRA Field	Import Notes
Project	CSV data is imported on a per-project basis. You can either specify an existing JIRA project(s) as the target, or the importer will automatically create a new project(s) for you at time of import. (For more information about JIRA projects, please see Defining a Project.)
Component(s)	You can import issues with multiple components by entering each component in a separate column.
Affects Version(s)	You can import issues with multiple 'Affects Versions' by entering each version in a separate column.
Fix Version(s)	You can import issues with multiple 'Fix Versions' by entering each version in a separate column.
Assignee	
Comment Body	You can import issues with multiple comments by entering each comment in a separate column.
Date Created	Please use the date format specified in your JIRA system (see Customising the Look and Feel).
Date Modified	Please use the date format specified in your JIRA system (see Customising the Look and Feel).
Description	
Due Date	Please use the date format specified in your JIRA system (see Customising the Look and Feel).
Environment	
Issue Type	If not specified in your CSV file, imported issues will be given the default (i.e. first) Issue Type as specified in your JIRA system — see Defining 'Issue Type' Field Values. You can also create new JIRA values on-the-fly during the import process.
Labels	You can import issues with multiple labels by entering each label in a separate column.
Priority	If not specified in your CSV file, imported issues will be given the default (i.e. first) Priority as specified in your JIRA system — see Defining 'Priority' Field Values. You can also create new JIRA values on-the-fly during the import process.
Reporter	
Resolution	If not specified in your CSV file, imported issues will be given the default (i.e. first) Resolution as specified in your JIRA system — see Defining 'Resolution' Field Values. You can also create new JIRA values on-the-fly during the import process.
Status	If not specified in your CSV file, imported issues will be given the default (i.e. first) Status as specified in your JIRA system — see Defining 'Status' Field Values. • The JIRA '**Status**' field is integral to JIRA workflow. To learn more, please see What is Workflow. • To create a **JIRA workflow**, please see Configuring Workflow. • To create a **JIRA workflow scheme** (which you can then associate with appropriate projects and Issue Types), please see Activating Workflow.
Summary	This field is required.
Votes	
Original Estimate	The value of this field needs to be specified as number of seconds.
Remaining Estimate	The value of this field needs to be specified as number of seconds.
Time Spent	The value of this field needs to be specified as number of seconds.

Users	You can choose to have the importer automatically create JIRA users for any values of the Assignee or Reporter field. • Users will be created as active accounts in JIRA. Users will need to get their passwords emailed to them the first time they log into JIRA. • Users with no real name will get the portion of their email address (login name) before the "@" character as their Full Name in JIRA. • If you are using External User Management, the import process will not be able to create JIRA users; instead, the importer will give you a list of any new users that need to be created. You will need to create the users in your external user repository before commencing the import. • If you have a user-limited license (e.g. personal license), and the number of required users is larger than the limit, then the import will be stopped. A page will be displayed showing a list of users that can't be created.
Other fields	If your wish to import any other fields, you can choose to map them to specific JIRA custom field(s). If your custom fields don't yet exist in JIRA, the importer can automatically create them for you.

Valid file format

The CSV importer assumes a Microsoft Excel styled CSV file. Fields are separated by commas, and enclosed in quotes if they contain commas or quotes. Embedded quotes are doubled.

For Microsoft Excel and OpenOffice it is not necessary to quote values in cells as these programs handle this automatically.

There are two requirements of the CSV, in addition to being well-formed in general:

- The CSV file **must contain a heading row.** The CSV configuration wizard uses the CSV header row extensively. The header values should **not have any punctuation** (beyond the commas separating records) such as apostrophes or the importer may not work correctly.
- As a minimum, the CSV file must contain a column for **Summary** data.

You can also have multi-lined CSV. For example, here is a valid file with a single record:

```
Summary,Description,Status
Login fails,"This is on
a new line",Open
```

Commas cannot be omitted. For example, this is valid:

```
Summary,Assignee, Reporter, Issue Type, Description, Priority
test, admin, admin, 1, ,
```

... but this is not valid:

```
Summary, Assignee, Reporter, Issue Type, Description, Priority
test, admin, admin, 1
```

For *built-in JIRA fields* (e.g. **Fix-for version, Affects version, Component),** if you wish to set more than one value for an issue, you will need to have a value per column in your CSV, with each column given a distinct name. For example:

```
IssueType,Summary,FixVersion_1,FixVersion_2
bug,"First issue",v1,
bug,"Second issue",v2,
bug,"third issue",v1,v2
```

In this example, the third imported issue will have its Fix-for version set to multiple values.

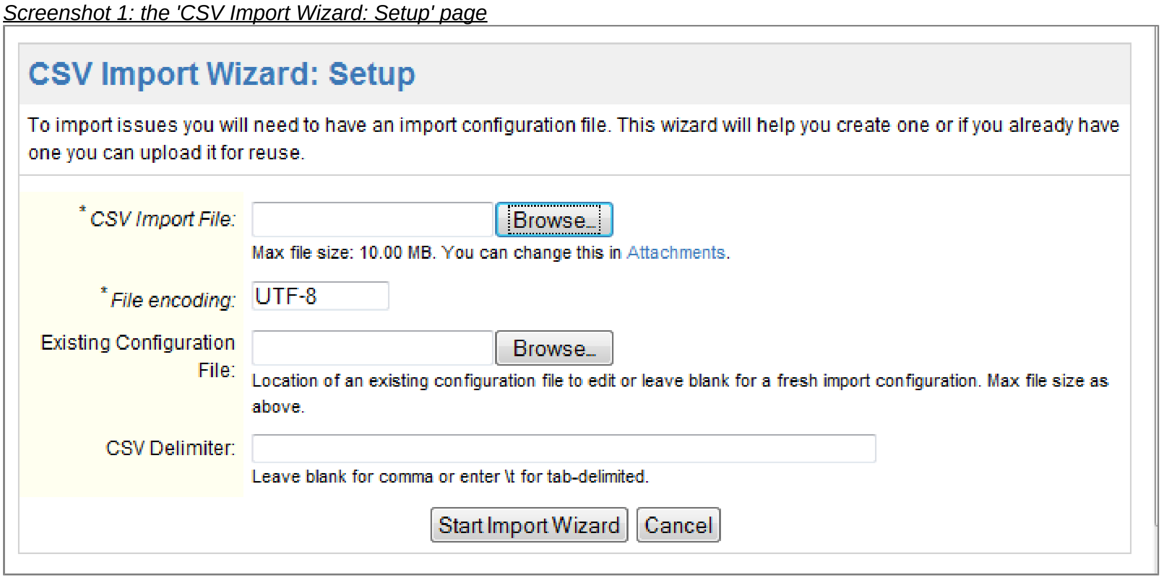
For *custom fields* the situation is different, and multiple values are comma-separated. See below for details.

CSV file encoding

JIRA will read the CSV file using the **system encoding,** which can be seen in Administration -> System Info. Make sure that you either save the CSV file with this encoding, or set -Dfile.encoding on startup to force the system encoding to be what you're using (utf8 is best).

How to import from CSV

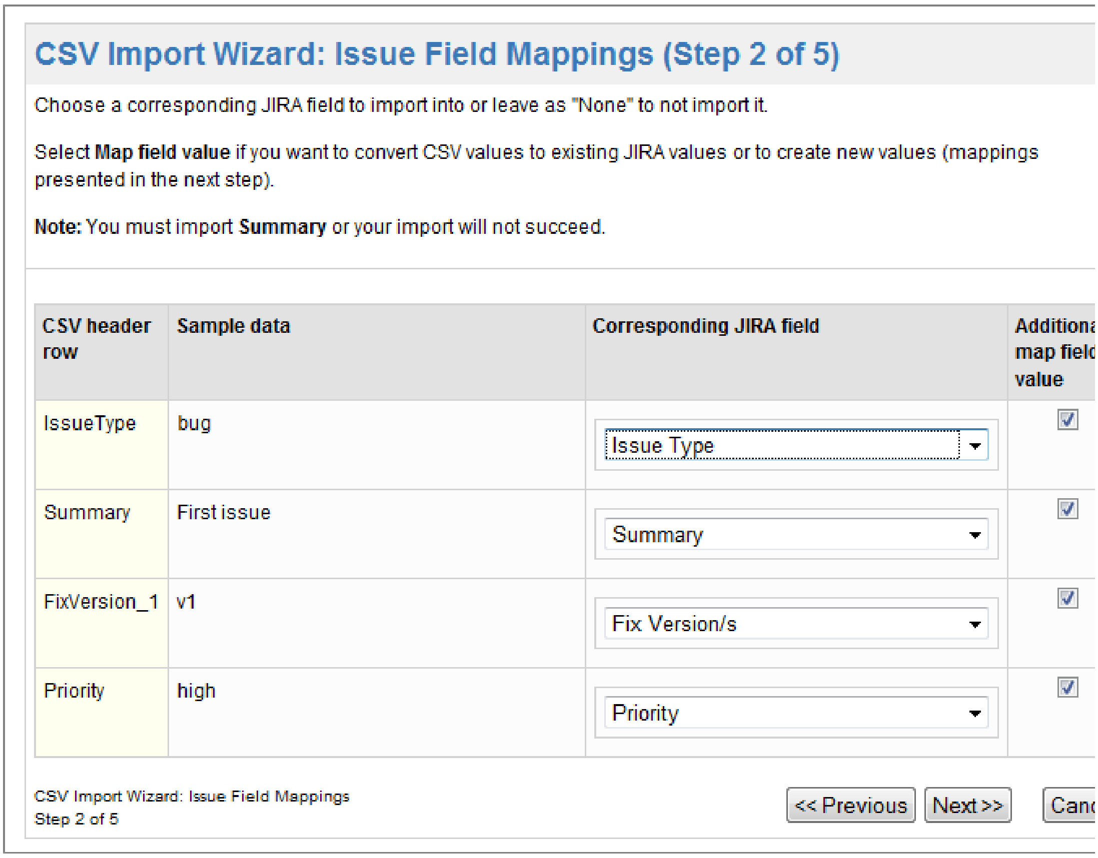
1. Before you begin, please backup your JIRA data.

2. In JIRA's default permission scheme (associated with newly created projects), ensure that the 'Browse', 'Create' and 'Comment' permissions are granted to the group 'jira-users' (or a group with the 'JIRA Users' global permission).
3. Log in to JIRA as a user with the **'JIRA System Administrators'** global permission.
4. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
5. On the panel on the left, under the title '**Import & Export**', click '**External System Import - Beta!**'. Then select '**Comma-separated values (CSV)**'.
6. The '**CSV Import Wizard: Setup**' page will be displayed:
   Screenshot 1: the 'CSV Import Wizard: Setup' page
   

7. Select your CSV file, then click the '**Start Import Wizard**' button at the bottom of the page (leave the '**Existing Confiuration File**' field blank if you don't yet have a configuration file, or if you want to create a new file or update the one you have). This will guide you through creating a **Configuration File**:
   - **Project Configuration:** You can either import *all* your issues into one JIRA project (new or existing); or import into multiple projects by including the project data in your CSV file.
     - **Import issues into an existing JIRA project** — type a project key (or project name) that already exists in JIRA.
     - **Import issues into a new JIRA project** — type a new '**Project Name**', '**Project Key**' and select which user will be the '**Project Administrator**'. The importer will create your new JIRA project automatically.
     - **Project information contained in CSV file** — ensure that every issues in your CSV file includes data for the project name/key.

       The JIRA '**Project key**' will be the prefix for the IDs of all issues in the given project.

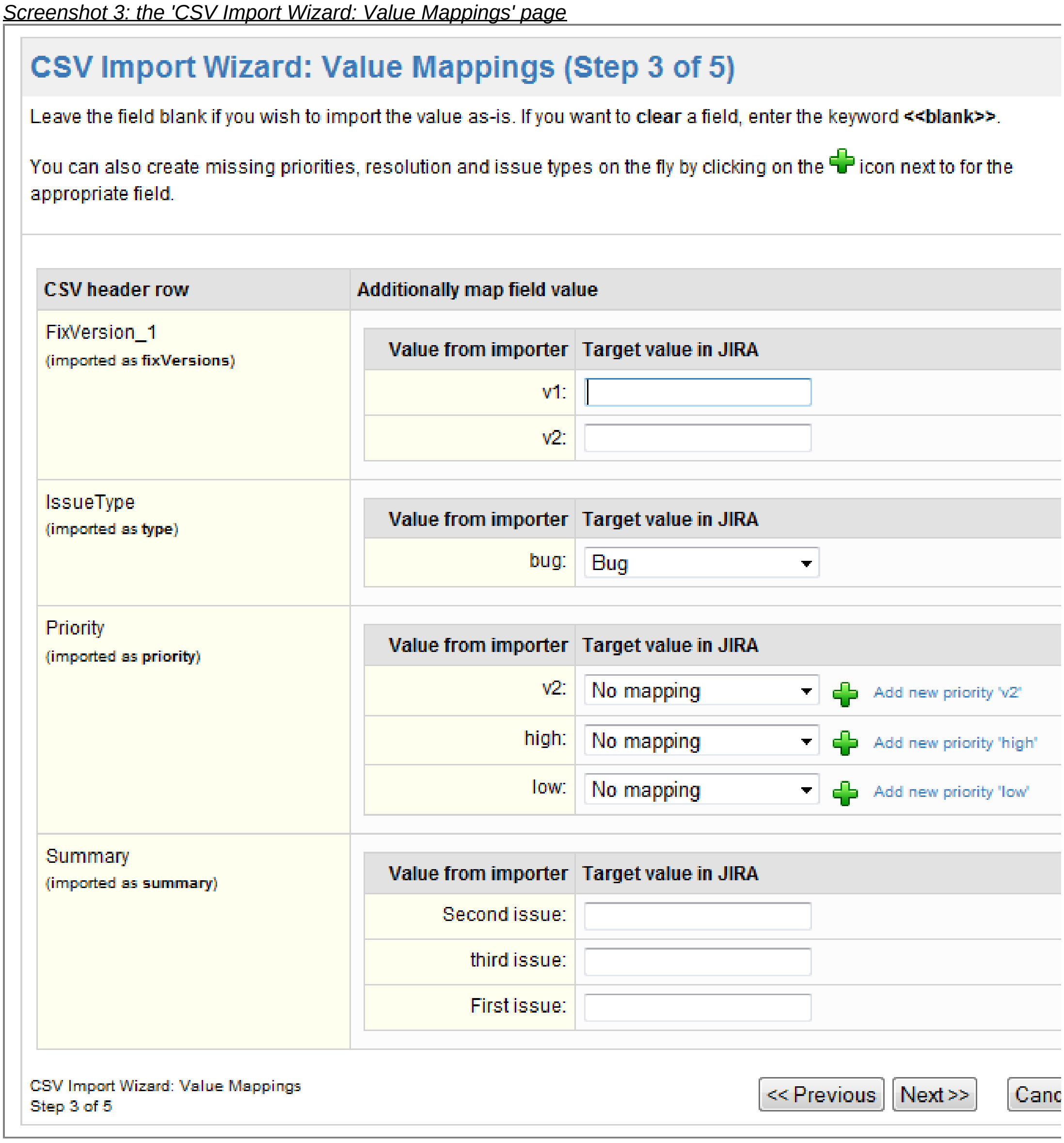
       There is no warning or error message if you select an existing key (or existing project name with a different key). The importer will import issues to the project specified by the key (or project name).
   - **Field Mappings:**
     - **'Summary'** field is required. All other fields are optional.
       Screenshot 2: the 'CSV Import Wizard: Issue Field Mappings' page



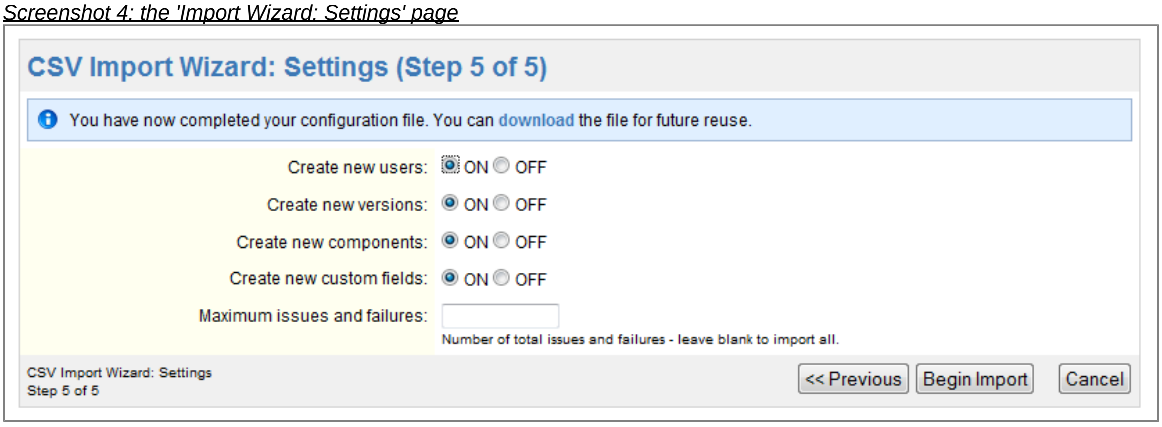
- **Field Value Mappings:**
  - Leave a field blank if you wish to import the value as-is. If you want to clear a field, enter the keyword `<<blank>>`.
  - You can create missing **Priority**, **Resolution** and **Issue type** values in JIRA on-the-fly by clicking the icon next to the appropriate field.
  - **Usernames** — If you don't specify mapping, the importer will automatically map imported usernames to JIRA usernames (lowercase).

    Regardless of whether you specify mapping, JIRA will automatically create usernames for missing users unless

you un-check the '**Create new users**' option on the final '**Import Data**' screen (see *Screenshot 4* below).
Screenshot 3: the 'CSV Import Wizard: Value Mappings' page



8. When you have finished specifying your field mappings, the '**Import Wizard: Settings**' page will be displayed:
Screenshot 4: the 'Import Wizard: Settings' page



- '**Create new users**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new usernames for imported users who do not already exist in JIRA.
- '**Create new versions**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new versions for imported versions which do not already exist in JIRA.
- '**Create new components**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create new components for imported components which do not already exist in JIRA.
- '**Create new custom fields**' — It is generally recommended that you leave this set to 'ON'. Only select 'OFF' if you do **not** want JIRA to automatically create custom fields for imported fields which do not have a corresponding field in JIRA.
- '**Maximum issues and failues**' — If you wish, specify a maximum number of failed issues after which the importer will stop. If you want the import to continue regardless of any failures, leave this field blank. If your old issue-tracker has a large number of issues, it's generally a good idea to run first the importer on a limited number of issues (e.g. 100), then manually inspect the imported issues to confirm whether your configuration file was specified correctly. When the results are satisfactory, you can run the import with no limit.

9. The importer will display updates as the import progresses, then a success message when the import is complete.

Congratulations, you have successfully imported your CSV data into JIRA! If you have any questions or encounter any problems, please contact Atlassian support.

Commonly Asked CSV Questions and Known Issues

- Overview
- Commonly Asked Questions
    - The importer simply doesn't work on my CSV file!
    - The importer fails at date fields, why?
    - Why does the importer always ask me to map values to column (at Step 3 of 5)?
    - Why doesn't the importer recognize the extra columns for comments?
- Known Issues
    - Why couldn't I import issues with other languages?
    - Why couldn't I import from cascading select fields?
    - Why couldn't I create subtasks?
    - Why couldn't I import component/version Custom Fields?
    - Known JBoss issue

Overview

This page answers some of the commonly asked CSV questions our technical support staff have encountered. If you are not able to find an answer from this page and our issue tracker, feel free to create a support issue.

Commonly Asked Questions

The importer simply doesn't work on my CSV file!

Please make sure that it is a valid and not-bad-formatted CSV file. You should be able to spot this with by turning on detailed logging and profiling. Also, please double check your configuration file and ensure that it's properly configured, e.g. exact delimiter, date format, etc.

The importer fails at date fields, why?

If you are seeing error message similar to this:

```
[00:55:28] FAILED: Customfield value 01/Nov/06 12:00 AM is invalid
[00:55:28] com.atlassian.jira.issue.customfields.impl.FieldValidationException: Invalid date
format. Please enter the date in the format "MMM/dd/yy".
at
com.atlassian.jira.issue.customfields.converters.DatePickerConverter.getTimestamp(DatePickerConverter
com.atlassian.jira.issue.customfields.impl.DateCFType.getSingularObjectFromString(DateCFType.java:46)
com.atlassian.jira.imports.importer.impl.DefaultJiraDataImporter.importIssues(DefaultJiraDataImporter
com.atlassian.jira.imports.importer.impl.DefaultJiraDataImporter.doImport(DefaultJiraDataImporter.jav
com.atlassian.jira.imports.importer.impl.ImporterThread.run(ImporterThread.java:21)
```

There are a few possible reasons:

- Date format is not correctly set in the import configuration file
- Date Picker and Date Time Picker formats are not consistent, e.g.

  ```
  jira.date.picker.java.format=dd/MMM/yy
  jira.date.time.picker.java.format=MMM/dd/yy hh:mm a
  ```

  should be corrected to,

  ```
  jira.date.picker.java.format=dd/MMM/yy
  jira.date.time.picker.java.format=dd/MMM/yy hh:mm a
  ```

Why does the importer always ask me to map values to column (at Step 3 of 5)?

It is because you have selected *Map Field Value* for the particular columns. To use the values from the CSV, you need just to map the column to the *Corresponding JIRA field*, otherwise, select the *Map field value* checkbox.

Why doesn't the importer recognize the extra columns for comments?

This is actually a known issue being raised at JIM-71. Please try the workaround as suggested in the issue. Alternatively, you can write your own comment mapper for more flexibility to meet your requirements.

Known Issues

Why couldn't I import issues with other languages?

Setting the **`-Dfile.encoding=utf8`** parameter *should be* able to fix your problem. Otherwise, you may like to vote for this issue at JIM-232.

Why couldn't I import from cascading select fields?

This is an open issue being tracked at JIM-231. Feel free to comment and vote on it.

Why couldn't I create subtasks?

This is an open issue being tracked at JIM-230. Feel free to comment and vote on it.

Why couldn't I import component/version Custom Fields?

This is an open issue being tracked at JIM-233. Feel free to comment and vote on it.

Known JBoss issue

There is a known problem that prevents the CSV Importer from being used with JIRA instances running on JBoss 4.x. This is due to a compatibility issue between the JBoss 4.x commons-collections.jar and the JIRA commons-collections.jar. The workaround is to replace the commons-collections.jar in JBoss 4.x with the more recent JIRA version. Please see JRA-6473 for further details.

How to Import CSV Data with PVCS Command

> The content on this page relates to platforms which are not supported for JIRA. Consequently, Atlassian can not guarantee providing any support for it. Please be aware that this material is provided for your information only and using it is done so at your own risk.

Importing from PVCS is not supported yet, but there is a feature request being tracked here. The above problem occurs whe the pvcs command is not configured in the CSV configuration.

Resolution

In order to import the author of the comment and the date of the comment successfully, there are a few required conditions:

- Append the settings in the csv configuration file which you have saved the configuration through wizard

```
settings.advanced.mapper.comment = com.atlassian.jira.imports.csv.mappers.PvcsComment
```

- Username (Example: eddie) must exists in JIRA
- The format of the comment should be as below:

```
"QA Note on Close: eddie: 4/28/2004 11:54:35 AM: Closing this defect as it is no longer
relevant"
```

Moving or Archiving Individual Projects

Over time, your organisation's requirements may change. This can lead to needing to:

- Archive a completed or obsolete project.
- Split a large JIRA instance into several JIRA instances, with particular projects in each.
- Restore a single project from a backup file into a JIRA instance.
- Restore an entire JIRA instance, from a backup into a new empty JIRA instance.

Archiving a Project

It is sometimes necessary to archive an old project, while retaining the project's data for future auditing purposes. There are a number of ways to achieve this:

- Online archiving
    - 'Hiding' a project
    - Making a project 'Read-Only'
    - Accessing an archived online project
- Offline archiving
    - Archiving a project offline
    - Accessing an archived offline project
    - Restoring a deleted project

Online archiving

Archiving a project online means keeping all of the project's issue data in your live JIRA instance. The advantage of archiving a project online is that you can easily make the project accessible again if required.

There are two ways to archive a project online:

'Hiding' a project

A 'hidden' project will still be visible via the 'Administration' menu, but it will no longer appear in the 'Browse Projects' list, and no-one will be able to search, view or modify any of the project's issues.

1. Create a new permission scheme. Leave all of the permissions empty.
2. Associate the new permission scheme with the project that you wish to hide (see Assigning a Permission Scheme to a Project).

Making a project 'Read-Only'

If you make a project read-only, the project will be visible via the 'Administration' menu, and will appear in the 'Browse Projects' list. The project's issues will be searchable and viewable, but noone will be able to modify them.

1. Create a new permission scheme. Grant the **'Browse Project'** permission to everyone who needs to be able to search or browse the project, or view its issues. Leave all of the other permissions empty.
2. Associate the new permission scheme with the project that you wish to hide (see Assigning a Permission Scheme to a Project).

Accessing an archived online project

If you archived a project online, by hiding it or making it read-only, then all of the project's data can be made accessible very easily. Simply associate the project with a permission scheme where the appropriate permissions (e.g. **'Edit Issue', 'Assign Issue', 'Resolve Issue',** etc) are assigned to the appropriate people.

Offline archiving

Archiving a project offline means creating an XML backup, then deleting the project and all of its issue data from your live JIRA instance. The project will no longer be available via the 'Administration' menu or the 'Browse Projects' list, and its issues will no longer exist in your live JIRA system.

The disadvantage of offline archiving is that there is no easy way to restore a deleted project to your live JIRA instance.

> If there is a possibility that you will need to restore the project into your live JIRA instance at some point in the future, then online archiving is recommended. Offline archiving should only be done if you are certain you will never need to restore this project to a live JIRA instance (i.e. you will only ever restore the data to a non-production instance).

Archiving a project offline

1. Create a global XML backup of your entire live JIRA instance.
2. Import the XML backup into a test JIRA instance. **Make sure that the test JIRA instance uses a separate database from your live JIRA instance, as the import will overwrite all data in the database.**
3. In your test JIRA instance, verify that you can view the issues of the project that you are archiving.
4. In your live JIRA instance, select **Projects** from the **Administration** menu, then click the **Delete** link to delete the project and all of its issues.

Accessing an archived offline project

1. Import the XML backup into a test JIRA instance. **Make sure that the test JIRA instance uses a separate database from your live JIRA instance, as the import will overwrite all data in the database.**

Restoring a deleted project

If you wish to restore a project from a backup file, please refer to the instructions in the Restoring a Project from Backup documentation. Note that the JIRA version and database type must be consistent with when the archive was created.

Splitting a JIRA instance

Occasionally an organisation may need to split its existing JIRA instance into two separate instances. For example, there might be a requirement to have some particular projects in one JIRA instance, and other projects in a second instance.

> **Note**
> This requires two separate server licenses.

To split a JIRA instance,

1. Backup your database, using your database backup procedures, and verify the backup.
2. Backup your attachments directory and verify the backup.
3. Install JIRA on your new server. NOTE:
    - The JIRA version number on your new server must be the same as (or higher than) the version number on your existing server.
    - Do not use the same JIRA home directory for the two JIRA instances. Specify a new JIRA home directory for the JIRA on your new server.
    - Do not connect the two JIRA instances to the same external database instance.
4. Create an XML file from your existing JIRA server, as described in Backing up data.
5. Import the XML file into your new server, as described in Restoring data.
6. Copy the attachments directory from your existing server to your new server, and configure your new server to use its own directory (for details please see Enabling File Attachments).
7. At this point you should have two JIRA instances with the same users, projects, issues and attachments. Log into both instances and perform some random searches to verify that the data is identical in both instances.
8. Delete the non-required projects from each JIRA instance.

Integrating with a Source Control System

JIRA can be easily integrated with many popular source control systems:

- Integrating JIRA with FishEye
- Integrating JIRA with CVS and ViewCVS
- Integrating JIRA with Subversion
- Integrating JIRA with Perforce
- Integrating JIRA with ClearCase

The most scalable and recommended solution is to use FishEye, which supports Subversion, Git, Perforce, Clearcase, CVS, and Mercurial with real-time notifications of code changes plus web-based reporting, visualisation, search and code sharing.

Integrating JIRA with FishEye

JIRA's FishEye integration allows you to browse your source-control repository from inside JIRA, provided you are using Atlassian FishEye with your source-control repository. FishEye integration is implemented as a plugin (drop-in extension) to JIRA, which ships with JIRA.

FishEye integration allows you to:

- View an Issue's FishEye Changesets
- Browse a Project's FishEye Changesets
- Add the FishEye Charts Gadget to your JIRA Dashboard
- Add the FishEye Recent Changesets Gadget to your JIRA Dashboard

For JIRA to successfully integrate with FishEye, the FishEye web server must first be set up to receive remote API calls. A FishEye administrator can do this by visiting the FishEye web server's 'Server Settings' page (which can be accessed from FishEye's 'Administration' area) and setting the 'Remote API' setting to 'On'. See Configuring the FishEye Web Server for more information.

On this page:

- Creating an Application Link Between a JIRA and a FishEye/Crucible Server
- Associating a FishEye Repository or Crucible Project with a JIRA Project

Integrating JIRA with FishEye or Crucible

To begin integrating JIRA with either FishEye or Crucible, an application link between your JIRA server and FishEye or Crucible server must be created first.

Creating an Application Link Between a JIRA and a FishEye/Crucible Server

You require JIRA System Administration permissions in order to perform this procedure.

To create an application link between a JIRA and a FishEye/Crucible server:

1. Go to your JIRA URL in your browser, e.g. `http://jira.mycompany.com:8080`.
2. Click '**Administration**' in the top navigation bar to open the JIRA Administration console.
3. Click '**FishEye Configuration**' in the 'Global Settings' section of the left-hand navigation panel. The 'JIRA FishEye Plugin' page will appear.
4. Click '**create an Application Link**'. The 'Configure Application Links' page will appear.
5. Create an application link between your JIRA server and the appropriate FishEye/Crucible server. (See the first procedure on Adding an Application Link from step 2 for details.) While doing so, be aware of the following:

- The 'Server URL' is the URL of your FishEye server, e.g. `http://coopers:8060` or `http://fisheye.foobar.com:8060`.

> **Integrating FishEye with JIRA**
> You can also configure FishEye to integrate with JIRA, which enables you to view JIRA data from within FishEye. Please see JIRA Integration in FishEye in the FishEye documentation for instructions.

Associating a FishEye Repository or Crucible Project with a JIRA Project

You may wish to associate a specific FishEye repository or Crucible project with a JIRA project. To do this, you need to create an 'entity link' between your JIRA project and a FishEye repository/Crucible project.

Associating JIRA projects with FishEye repositories or Crucible projects is recommended as it greatly improves JIRA's responsiveness when your users view the 'Source' or 'Review' tabs on JIRA issues. Otherwise, JIRA must scan for all FishEye repositories/Crucible projects which are accessible to a user, whenever that user views these tabs on a JIRA issue.

This process is mandatory if your FishEye/Crucible server has no publicly accessible repositories/projects and JIRA's application link to this FishEye/Crucible server uses OAuth outgoing authentication.

You can only perform this procedure once an application link has been established between your JIRA and FishEye/Crucible servers (above).

To create an application link between a JIRA and a FishEye/Crucible server:

1. Go to your JIRA URL in your browser, e.g. `http://jira.mycompany.com:8080`.
2. Click '**Administration**' in the top navigation bar to open the JIRA Administration console.
3. Click '**Projects**' link in the 'Project' section of the left-hand navigation panel.
4. Click the name of the JIRA project that you want to associate with a FishEye repository/Crucible project. The JIRA project's configuration page will appear.
5. Locate the 'Application Links' option and click '**Configure Application Links**'. The page for configuring links from your JIRA project to the entities of applications (already linked on your JIRA server) will appear.
6. Create an entity link between your JIRA project and the appropriate FishEye repository/Crucible project. (See the procedure on Linking your JIRA Project to another Entity from step 4 for details.)

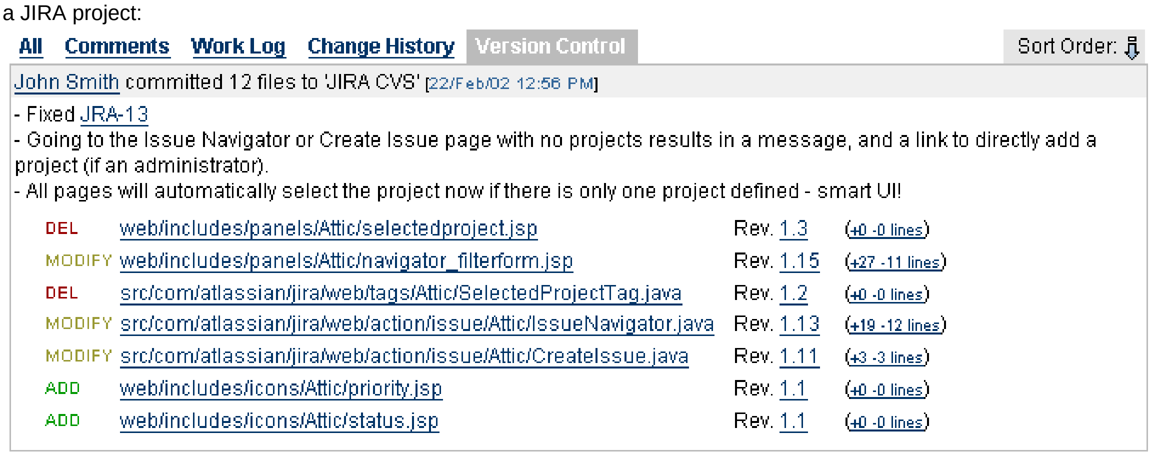
Integrating JIRA with CVS and ViewCVS

JIRA's CVS integration shows the related CVS commit information for an issue. When a CVS commit message mentions an issue, JIRA picks this up and displays the commit log in a tab in the mentioned issue.

> CVS is also supported by Atlassian FishEye, providing a highly scalable and comprehensive integration with JIRA, including real-time notifications of code changes plus web-based reporting, visualisation, search and code sharing. For details, please see Integrating JIRA with FishEye.

JIRA's CVS integration features include:

- Ability to interact with a CVS server log directly via local access, pserver or external (ssh) protocols, or to parse a CVS log file generated by an external process.
- Access to the version control information in JIRA can be easily controlled using flexible permissions. If you are running a public instance of JIRA, and do not want the rest of the world to see the version control information, JIRA can be configured to restrict access to that information to the chosen users.
- ViewCVS or FishEye are supported out-of-the-box; and Subversion is available as a plugin (drop-in extensions to JIRA).
- If CVS integration is configured, the files and revisions in JIRA are linked to the relevant pages. E.g. the following screenshot shows a JIRA project:



Because ViewCVS is configured, JIRA has turned the displayed commit information into ViewCVS links.

- Clicking the name of the file will take the user to the ViewCVS file summary page.

    - Clicking the revision will take the user to the page that shows the contents of the file as it was at that revision.
    - Clicking the 'diff' summary will show the ViewCVS 'diff' page between the shown revision of the file and its previous revision.
- Each project in JIRA can be associated with a CVS module. A project can also have multiple modules.

There are 3 steps to configure CVS integration in JIRA:

1. **Create a CVS module**
2. **Associate project(s) with CVS module(s)**
3. **Grant permission to view CVS information**

How JIRA's CVS integration works

JIRA retrieves the CVS commit information for an issue by parsing the output of the 'cvs rlog' (or cvs log) command of each associated CVS module and scanning it for the issue's key. If an issue key is found in the commit message, the commit message is displayed on the Version Control tab for the issue.

If you have allowed JIRA to automatically synchronise with the CVS repository, JIRA will periodically run the 'cvs rlog' command for the module and store the results in a file which path is specified by the module's *Log File Path* attribute. The file is then parsed for commit information.

> Even if you are using local repository access JIRA will obtain the CVS log for the module and then parse it. JIRA does not access the CVS repository directly.

If you have chosen to update the log manually, JIRA will only periodically parse the CVS log specified by the module's *Log File Path* attribute.

As JIRA parses the module's CVS log and keeps relevant commits in memory, the required memory for JIRA is relative to the size of the CVS module.

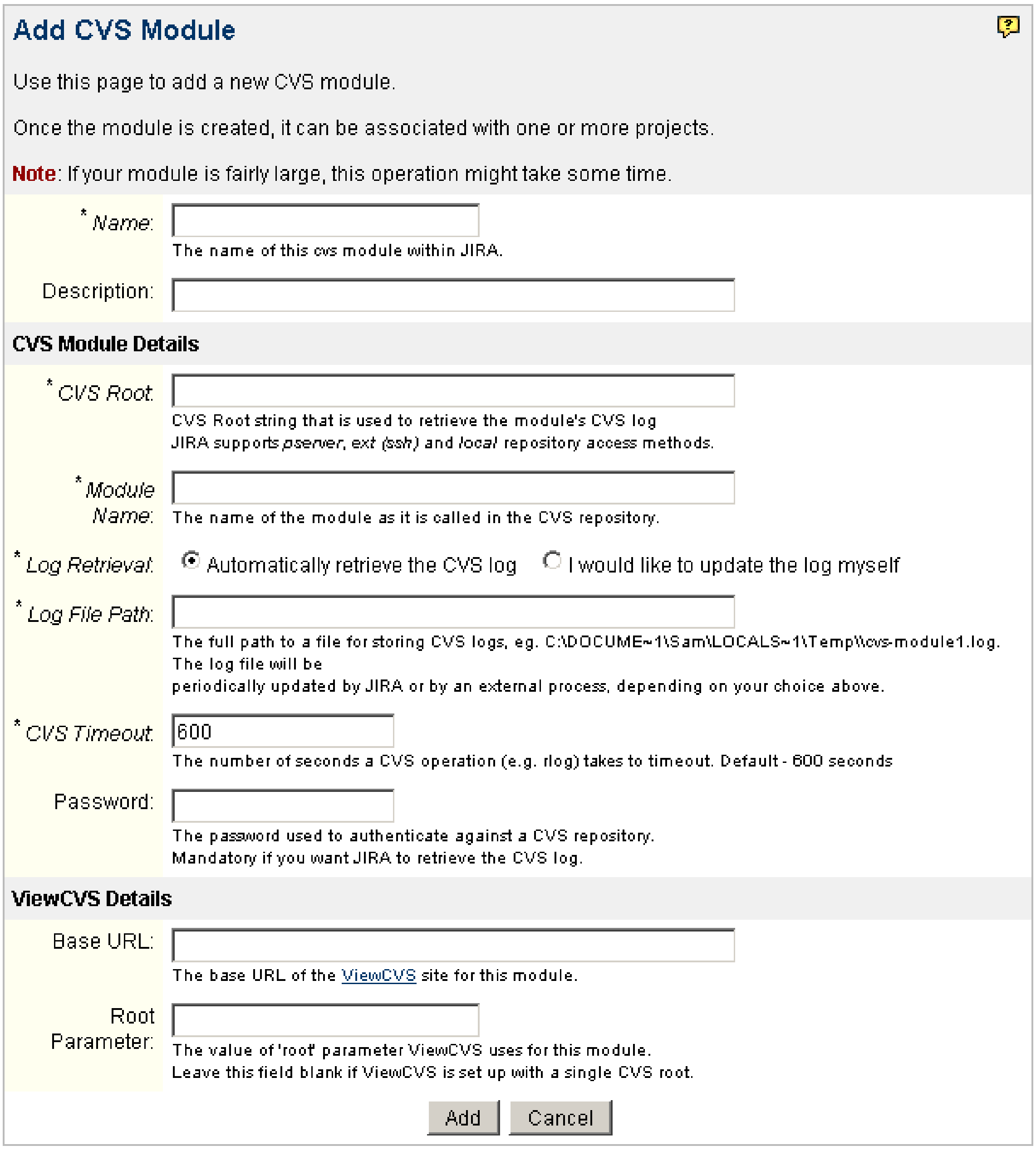
Please note:

- Currently, JIRA is able to retrieve CVS log data via local access, pserver protocol or ssh (ext method). If your CVS is not reachable by these methods you can disable automatic log retrieval (see below).
- If you would like JIRA to automatically keep synchronised with your CVS repository, the communication between JIRA and the CVS server might be fairly bandwidth intensive as JIRA will periodically retrieve the CVS module's log data from the CVS repository. If this is causing problems, consider adjusting the frequency (see below) or disabling CVS log retrieval.
- JIRA loads and parses the output of the 'cvs log' command for each CVS module and keeps 'relevant' commits in memory. Therefore JIRA's memory requirements depend on the number of relevant commits found in the CVS module. Relevant commits are CVS commits which have at least one potential JIRA key in their commit messages.
- Only commit messages which contain a possible JIRA issue key are linked to an issue.
- JIRA's 'System encoding' is used when parsing the CVS logs, so it needs to match that of the CVS log. The system encoding can be seen at Admin -> System -> System Info. See also how to set the system encoding.

Step 1. Create a CVS Module in JIRA

A CVS 'module' refers to a top-level directory in a CVS repository. To create a CVS module:

1. Create or decide which existing directory will be used to store CVS module's log data (The file with the output of the 'cvs log' command). JIRA must have read and write access to the directory. The write access is required even if you choose to update the CVS log manually as JIRA needs to use this directory to create a lock file in order to synchronise access to the CVS module's log.
2. Log in as a user with the **'JIRA System Administrators'** global permission.
3. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
4. On the panel on the left, expand the sub-menu titled **'Global Settings'** if it is not open already. Click on the link labelled **'CVS Modules'.** This should bring up the **'CVS Modules'** page.
5. Click on the **'Add new CVS module'** link on this page.
6. This will bring up the **'Add CVS Module'** page.



Fill in as follows:

a. For **'Name'** put a short descriptive name, possibly just the name of the CVS module as it appears in your CVS repository.
b. (Optional) For **'Description'** put a short phrase that describes this CVS module.
c. Specify **'CVS Root'** that will be used to retrieve the CVS module's log or was used to retrieve the log. The CVS Root is needed while parsing the log data so it is required even if you choose to retrieve CVS log manually. Please provide 'full' CVS Root details. For example:

- /some/local/path (for local repository access)
- :pserver:username@hostname:port/some/path (for pserver access)
- :ext:username@hostname:/some/path (for ssh access)If JIRA finds trouble understanding your local CVS Root (e.g. on Windows systems) please prefix the path with *:local:*. For example, :local:d:\some\path.

a. For **'Module Name'** specify the name of the module as it is called in the CVS repository. This will usually be the top-level directory (eg. `myproject`), but can also include subdirectories (`myproject/subproject/src/java`) - basically anything that can be parsed to a `cvs checkout` command.This information is required to retrieve the CVS log as well as to parse it, so you will need to provide the module's CVS name even if you choose to retrieve the CVS log manually.
b. For **'Log Retrieval'** choose whether you would like JIRA to automatically synchonise with the CVS repository. If you choose **'Automatically retrieve the CVS log',** JIRA will periodically retrieve the CVS log for the module automatically and then parse it for commit information. If you choose **'I would like to update the log myself',** JIRA will not retrieve the log, but will periodically just parse it. If you choose this option you will need to update the CVS log by other means (e.g. manually or using a scheduled script) to keep the CVS information in JIRA current.
c. For **'Log File Path'** specify the full path to the **file** that will contain the CVS log data. This file should be located in a directory mentioned in step 1. If you would like JIRA to periodically update the contents of the log this file does not need to exist at the moment, as JIRA will automatically create it. If you choose to manually update the file please ensure that the log file already exists at the specified path and is readable by JIRA.
d. For **'CVS Timeout',** specify how many seconds it takes the CVS operation (e.g. rlog) to timeout
e. The **'Password'** needs to be provided only if you let JIRA automatically retrieve the module's CVS log. Please specify the password that is needed to retrieve the log using the method specified in the CVS Root. If no password is required, leave the field empty.
f. (Optional) For **'Base URL'** in the **'ViewCVS Details'** section of the page, enter the fully qualified URL (i.e. include 'http://' or

'https://' at the beginning) to the ViewCVS site of the CVS module. The URL needs to point to the root of the module on the ViewCVS site.

> If you are integrating with FishEye you do not need to perform any special steps. FishEye can resolve all the URLs that ViewCVS expects. You just need to enter the fully qualified URL to your FishEye installation and the specific repository you wish to view. This is the same URL you would get if you were to browse to the project within FishEye.

g. (Optional) For **'Root Parameter'** in the **'ViewCVS Details'** section of the page, enter the name of the Project Root that is used in ViewCVS to navigate the CVS module. This parameter is required only if ViewCVS has been set up to work with multiple CVS modules, and this module is not the default module on the ViewCVS server. The value that should be placed in this field is the same as the value of the 'root' URL parameter that appears on every ViewCVS URL (e.g. when viewing a file). If the URL that appears in your browser when viewing a file from this CVS module on ViewCVS does not have the 'root' parameter, leave this field blank.

7. Click the **'Add'** button.
8. This should bring you back to the **'CVS Modules'** page, where you should see the new CVS module listed. You can edit and delete this module here.

> If JIRA has trouble understanding your local CVS Root (e.g. on Windows systems) please prefix the path with :local:. For example, :local:d:\some\path

Step 2. Associate Project(s) with CVS Modules

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the left-hand navigation panel, click the **'Projects'** link.
4. This will bring up the **'Projects'** page. It lists all the existing projects. Select a project that you would like to associate with the CVS module.
5. The project's summary page sill be displayed. Next to **'CVS Modules'** click the **'Celect Module'** link. This will display the **'Select Version Control Modules'** page, where you can associate the project with a CVS module (or with multiple CVS modules).
6. Select the appropriate module(s), and click the **'Select'** button.

Step 3. Configuring Permissions

The 'View Version Control' permission needs to be given to users/groups/roles that should be allowed to see CVS commit information. Note: by default this permission is given to the 'jira-developers' group. Please read the Project Permissions section, and follow the instructions given there to assign the 'View Version Control' permission.

Disabling Automatic CVS Log Retrieval

To disable automatic CVS log retrieval for a CVS module please choose the **'I would like to update the log myself'** option for the module's **'Log Retrieval'** attribute.

If you have disabled automatic CVS log retrieval for the CVS module, JIRA will only *parse* the CVS log periodically. Therefore, for the new commit information to appear in JIRA, the log needs to be updated by other means. This can either be done manually, or a scheduled CVS update script can be used.

> Before updating the module's CVS log, please check for the existence of a lock file with name **'cvslog.write.lock'** in the *same* directory as the CVS log file. If the lock file exists, please wait until it is removed before updating the log.
>
> When updating the CVS log for a module, please create a lock file with the name **cvslog.write.lock** in the *same* directory as the CVS log file to ensure that JIRA does not start parsing the log while it is still being updated. Please do not forget to remove the lock file after the update has finished.

Adjusting the Frequency of Module Updates

To minimise the network traffic between JIRA and the CVS server, JIRA updates and re-parses the commit information of the associated CVS modules only once during the specified period of time. By default, this period of time is 1 hour, but it can be adjusted if required.

When the first CVS module is created in JIRA, a background service is automatically started. The service is called **'VCS Update Service'.** To change the frequency of the module updates, follow these steps:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Open the **'System'** tab of the left-hand menu, if it is not already open.

4. Select **'Services'** from the **'System'** tab. A page showing all the configured services will appear. If at least one CVS module has been configured, the **'VCS Update Service'** should be present in the list.
5. Click the **'Edit'** link in the right-most column of the **'VCS Update Service'.** This will display a page where you can set the delay for the service.
6. Change the value as required. Remember that the delay is specified in minutes.
7. Click the **'Update'** button to make the changes take effect.

Please keep in mind:

- The CVS modules are updated one after another every specified period of time. That is, it is not possible to specify a different update delay for each configured CVS module.
- If you are using automatic log retrieval for your CVS modules and you set the delay to a very low value, the bandwidth consumption between JIRA and the CVS server might be very high.
- If the delay is set to a very large value, the 'new' cvs commit messages will not appear in JIRA for some time.

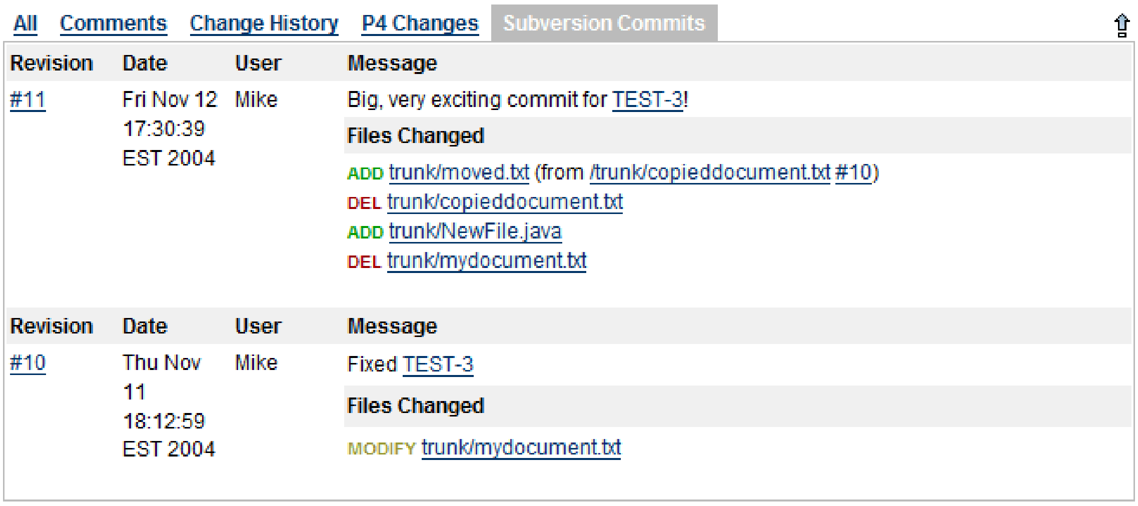
CVS Aliases

JIRA does not currently support CVS aliases. If you have a CVS alias that references more than one module, please create each CVS module in JIRA and then associate each module with the relevant JIRA project(s).

The feature request for adding CVS alias module support to JIRA is JRA-4586. Please vote for the issue to increase its popularity. Please refer to Implementation of New Features Policy which describes the way Atlassian implements new features and improvements.

Integrating JIRA with Subversion

JIRA's Subversion integration lets one see Subversion commit information relevant to each issue. Subversion integration can be implemented either by using Atlassian FishEye or the Subversion plugin (drop-in extension) mentioned below. The Fisheye integration offers greater scalability, insight and flexibility into your source code and related integration with JIRA but both are excellent to make sure that JIRA is connected to the related code changes.



Commits will appear in this tab if the commit log mentions the issue key ('TEST-3' above).

For more information, see the Subversion plugin page online.

Integrating JIRA with Perforce

Perforce is supported by Atlassian FishEye, providing comprehensive integration with JIRA including real-time notifications of code changes plus web-based reporting, visualisation, search and code sharing. For details, please see Integrating JIRA with FishEye.

The original Perforce Plugin for JIRA is **deprecated** and has been superseded by the JIRA FishEye Plugin, which is included with JIRA.

Integrating JIRA with ClearCase

ClearCase is supported by Atlassian FishEye, providing comprehensive integration with JIRA including real-time notifications of code changes plus web-based reporting, visualisation, search and code sharing. For details, please see Integrating JIRA with FishEye.

Alternatively, there is a JIRA ClearCase plugin which shows ClearCase checkins associated with JIRA issues. Please note that this plugin is not developed or supported by Atlassian.

Integrating with a Build Management System

JIRA integrates tightly with Bamboo, Atlassian's Continuous Integration server.

- Integrating JIRA with Bamboo

Integrating JIRA with Bamboo

Installing the Bamboo plugin on your JIRA server allows users to:

- add the Bamboo Charts gadget to their JIRA dashboards.
- add the Bamboo Plan Summary gadget to their JIRA dashboards.
- add the Bamboo Plans gadget to their JIRA dashboards.
- browse a project's Bamboo builds.
- browse a version's Bamboo builds.
- view the Bamboo builds related to an issue.

For full details on how to install the Bamboo plugin, please see the Bamboo documentation on Integrating Bamboo with JIRA.

Configuring Global Settings

- Configuring JIRA Options
- Setting Properties and Options on Startup
  - Recognized System Properties for JIRA
- Advanced JIRA configuration with jira-application.properties
- Configuring File Attachments
- Configuring Sub-tasks
- Configuring Issue Linking
- Enabling Trackback
- Configuring Time Tracking
- Configuring the Whitelist
- Configuring Application Links
  - Adding an Application Link
  - Configuring Authentication for an Application Link
    - Configuring Basic HTTP Authentication for an Application Link
    - Configuring OAuth Authentication for an Application Link
    - Configuring Trusted Apps Authentication for an Application Link
  - Editing an Application Link
  - Making an Application Link the Primary Link
  - Relocating an Application Link
  - Upgrading an Application Link
  - Deleting an Application Link
  - Configuring Link Rendering
  - Configuring Entity Links for an Application Link
    - Linking your JIRA Project to another Entity
    - Making an Entity Link the Primary Link
    - Deleting an Entity Link

Configuring JIRA Options

JIRA has a number of configuration options that allow the system to be customised for use within your organisation. To edit these options:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title '**Global Settings**', click the link labelled '**General Configuration**'.
4. The following screen will be displayed. Click '**Edit Configuration**' to edit the three sections as described below:
   - Settings
   - Internationalisation
   - Options

Settings

Title	Your Company JIRA
Mode	Public
Maximum Authentication Attempts Allowed	Unlimited
CAPTCHA on signup	OFF
Base URL	http://localhost:8080
Email from	${fullname} (JIRA)
Introduction	

Internationalisation

Character encoding	UTF-8
Indexing language	english
Installed languages	Catalan (Spain) Chinese (China) Chinese (Taiwan) Czech (Czech Republic) Danish (Denmark) Dutch (Belgium) English (UK) English (United States) French (France) German (Germany) German (Switzerland) Hungarian (Hungary) Italian (Italy) Japanese (Japan) Norwegian (Norway) Polish (Poland) Portuguese (Brazil) Russian (Russia) Slovak (Slovakia) Spanish (Spain) Turkish (Turkey)
Default language	English (Australia)

Options

Allow users to vote on issues	ON
Allow users to watch issues	ON
Allow unassigned issues	OFF
External user management	OFF
External password management	OFF
Logout confirmation	Never
Use gzip compression	OFF
Accept remote API calls	OFF
User email visibility	Public
Comment visibility	Project Roles only
Exclude email header "Precedence: bulk"	OFF
Issue Picker Auto-complete	ON
User Searching By Full Name	ON
JQL Auto-complete	ON
Internet Explorer MIME Sniffing Security Hole Workaround Policy	Work around Internet Explorer security hole

Edit Configuration

Settings

Setting	Description
Title	This is the title that will be displayed on the JIRA login page and the dashboard. It helps identify your installation and its purpose. Also see logo, which is displayed on every JIRA page.

Mode	JIRA can operate in two modes: • **Public** — Anyone can sign themselves up and create issues (within the bounds of your JIRA system's permissions). • **Private** — Useful for internal issue-tracking systems where you do not want public users to login. Self-signup is disabled; only Administrators can create new users. *Default:* ***Public***
Maximum Authentication Attempts Allowed	The maximum authentication attempts that are allowed before CAPTCHA is shown to a user. If you leave it blank then CAPTCHA will never be shown and users will have unlimited authentication attempts. It is recommended that you set this to a small number (e.g. below 5). *Default:* ***3*** *(for new installations of JIRA)* If you upgrade from a version of JIRA prior to 4.1.1, this option will be reset to 3 for security reasons mentioned in the JIRA 4.1.1 Upgrade Guide.
CAPTCHA on signup	If you are running JIRA in Public mode (see above), it is strongly recommended that you enable CAPTCHA. This will show a CAPTCHA image on signup to prevent spambots from signing up. *Default:* ***ON***
Base URL	The base URL of this JIRA installation. You can only configure JIRA to respond to a single URL and this setting must match the URL that your users request for accessing your JIRA site. You cannot (for example) have a different hostname or URL for internal and external users. This is especially important for JIRA 4.0.x or higher, as any mismatch between this Base URL setting and the URL requested by your JIRA users will cause problems with dashboard gadgets. This URL is also used in outgoing email notifications as the prefix for links to JIRA issues.
Email from	Specifies the **From:** header format in notification emails. Default is of the form "John Doe (JIRA) <jira@company.com>". Available variables are '${fullname}', '${email}' and '${email.hostname}'. Note that the actual address (e.g. 'jira@company.com') cannot be specified here - it is determined by the mail server or individual project configuration.
Introduction	A short introduction message displayed on the dashboard. (Note: also see the announcement banner, which is displayed on *every* JIRA page). You can include HTML, but ensure all tags are correctly closed.

Internationalisation

Setting	Description
Character encoding	The character encoding for input and viewing of information within JIRA. For most western languages, the default ("UTF-8") should be suitable.If you change this setting, ensure that you also change your database's encoding. View a list of supported encodings. However, please use the IANA preferred MIME name (such as 'iso-8859-1' instead of 'ISO8859_1') to ensure that XML backups have the correct encoding string.
Indexing language	JIRA uses Lucene, a high-performance text search engine library, in full-text searches over the issues stored in JIRA.Indexing and searching for issues is affected by the language that the issues are entered in. Please choose the language that issues are entered in. If multiple languages are chosen, choose 'Other'. Note: You will need to re-index JIRA if you change this value.
Installed languages	This section lists all language packs available within the JIRA system. (Note: to install additional languages, see Internationalisation.)
Default language	This is the language used throughout the JIRA interface (as selected from the list displayed in **Installed Languages** above). Users can override the default language by using the **Language** setting in their user profile.

Options

Setting	Description
Allow users to vote on issues	Controls whether voting is enabled in JIRA. Voting allows users to indicate a preference for issues they would like to be completed or resolved. See also the 'View Voters and Watchers' permission. *Default:* ***ON***
Allow users to watch issues	Controls whether watching is enabled in JIRA. Users can 'watch' issues which they are interested in. Users watching an issue will be notified of all changes to it. See also the 'View Voters and Watchers' and 'Manage Watcher List' permissions. *Default:* ***ON***
Allow unassigned issues	When turned **ON,** JIRA will allow issues to be unassigned or assigned to 'no-one'.When turned **OFF,** issues must always be assigned to someone - by default, the assignee will be the **Project Lead** as defined for each project. *Default:* ***OFF***
External user management	When turned **ON**, you will no longer be able to create, edit or delete users/groups from within JIRA (or via email or import); but you can still assign users/groups to project roles, and create/edit/delete user properties. Additionally, JIRA will not display options for users to change their password, or edit their profile. Generally you would only turn this **ON** if you are managing all your users from outside JIRA (e.g. using Crowd, Microsoft Active Directory or another LDAP directory). *Default:* ***OFF***

External password management	When turned **ON**, JIRA will not display options for users to change their password, or display the 'Forgot Password' link on the login screen. Generally you would only turn this **ON** if you are managing passwords from outside JIRA, that is, if you are using an Internal Directory with LDAP Authentication. *Default: **OFF***
Logout confirmation	Controls whether to obtain user's confirmation when logging out: **NEVER COOKIE** - prompt for confirmation if the user was automatically logged in (via a cookie). **ALWAYS** *Default: **NEVER***
Use gzip compression	Controls whether to compress the web pages that JIRA sends to the browser. It is recommended that this be turned ON, unless you are using mod_proxy. *Default: **OFF***
Accept remote API calls	Controls whether to allow remote client access (via XML-RPC or SOAP) to this JIRA installation, for authenticated users. *Default: **OFF***
User email visibility	Controls how users' email addresses are displayed in the user profile page. **PUBLIC** - email addresses are visible to all. **HIDDEN** - email addresses are hidden from all users. **MASKED** - the email address is masked (e.g. 'user@example.com' is displayed as 'user at example dot com'). **LOGGED IN USERS ONLY** - only users logged in to JIRA can view the email addresses *Default: **PUBLIC***
Comment visibility	Determines what will be contained in the list that is presented to users when specifying comment visibility and worklog visibility. **Groups & Project Roles** - the list will contain groups and project roles. **Project Roles only** - the list will only contain project roles. *Default: **Project Roles only***
Exclude email header 'Precedence: bulk'	Controls whether to prevent the **Precedence: Bulk** header on JIRA notification emails. This option should only be enabled when notifications go to a mailing list which rejects 'bulk' emails. In normal circumstances, this header prevents auto-replies (and hence potential mail loops). *Default: **OFF***
Issue Picker Auto-complete	Provides auto-completion of issue keys in the 'Issue Picker' popup screen. Turn OFF if your users' browsers are incompatible with AJAX. *Default: **ON***
User Searching By Full Name	Enables auto-completion of user names in the 'User Picker' popup screen. Also enables JQL-based searching of Full Names. Turn OFF if you have a very large number of users, or if your users' browsers are incompatible with AJAX.Note: If **'User email visibility'** (see above) is set to HIDDEN, the users' email addresses will not be searched or shown in the auto-complete results. *Default: **ON** if you have less than 5,000 users (or **OFF** if you have more than 5,000 users).*
JQL Auto-complete	Provides auto-completion of search terms when users perform an advanced (JQL) search. Turn OFF if you prefer not to use this feature, or are experiencing a performance impact. *Default: **ON***
Internet Explorer MIME Sniffing Security Hole Workaround Policy	Attachment viewing security options for cross-site site scripting vulnerabilities present in Internet Explorer 7 and earlier. Changes the default browser action for attachments in JIRA. Options are: • **Insecure: inline display of attachments** - allows all attachments to be displayed inline. Only select this option if you fully understand the security risks. See JIRA Security Advisory 2008-08-26 for further details. • **Secure: forced download of all attachments for all browsers** - force the download of all attachments. This is the most secure option, but is less convenient for users. • **Work around Internet Explorer security hole** - forced download of high-risk attachments (IE-only Workaround) - for IE browsers, force the download of attachments that IE would mistakenly detect as an HTML file. Declared HTML attachments are also never displayed inline. Use this option to reduce the risk of attacks to IE users via attachments. *Default: **Work around Internet Explorer security hole***

See Also

There are a handful of other properties (usually storing defaults of little interest to most JIRA users) in the **WEB-INF/classes/jira-application.properties** file, which you may want to edit. For details, please see Advanced JIRA configuration with jira-application.properties.

Setting Properties and Options on Startup

This page describes how to set Java properties and options on startup for JIRA Stand-alone and EAR/WAR versions.

On this page:

- Linux

- Windows (starting from .bat file)
- Windows Service
  - Setting Properties for Windows Services via Command Line
  - Setting Properties for Windows Services via the Windows Registry
- Verifying Your Settings
- List of Startup Parameters

Linux

To Configure System Properties in Linux Installations,
1. From `<jira-install>/bin` (Stand-alone) or `<Tomcat-home>/bin` (EAR-WAR installation), open **setenv.sh**. 2. Find the section **JVM_SUPPORT_RECOMMENDED_ARGS=** 3. Refer to the list of parameters below. Add all parameters in a space-separated list, inside the quotations.

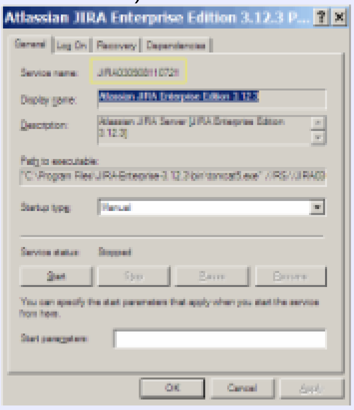
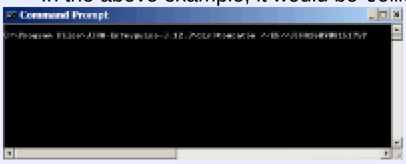
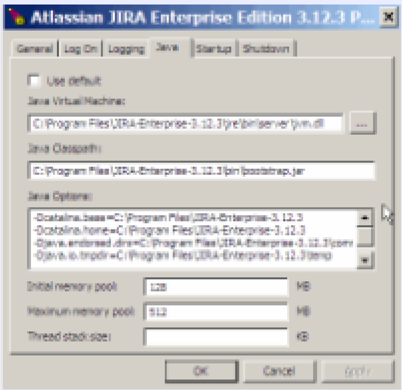
Windows (starting from .bat file)

To Configure System Properties in Windows Installations When Starting from the .bat File,
1. From `<jira-install>/bin` (Stand-alone) or `<Tomcat-home>/bin` (EAR-WAR installation), open **setenv.bat**. 2. Find the section **set JVM_SUPPORT_RECOMMENDED_ARGS=** 3. Refer to the list of parameters below. Add all parameters in a space-separated list, inside the quotations.

Windows Service

There are two ways to configure system properties when starting Running JIRA Standalone as a Service, either via command line or in the Windows Registry

Setting Properties for Windows Services via Command Line

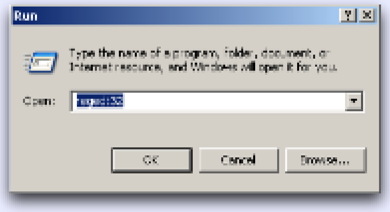
Setting Properties for Windows Services via Command Line
1. Identify the name of the service that JIRA is installed as in Windows (`Control Panel > Administrative Tools > Services`):  In the above example, the **SERVICENAME** is: `JIRA030908110721` 2. Open the command window from `Start >> Run >> type in 'cmd' >> Enter` 3. `cd` to the `bin` directory of your JIRA Standalone instance, or the `bin` directory of your Tomcat installation if your are running JIRA EAR/WAR. 4. Run: `tomcat6w //ES//%SERVICENAME%` . In the above example, it would be `tomcat6w //ES//JIRA030908110721`  5. Click on the `Java` tab to see the list of current start-up options:  6. Append any new option on its own new line by adding to the end of the existing Java Options. Refer to the list of parameters below.

Setting Properties for Windows Services via the Windows Registry

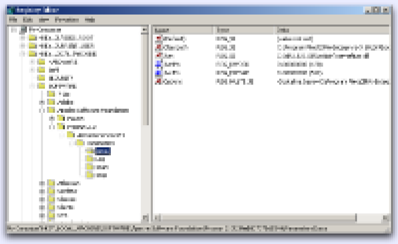
In some versions of Windows, there is no option to add Java variables to the service. In these cases, you must add the properties by viewing the option list in the registry.

To Set Properties for Windows Services via the Windows Registry,

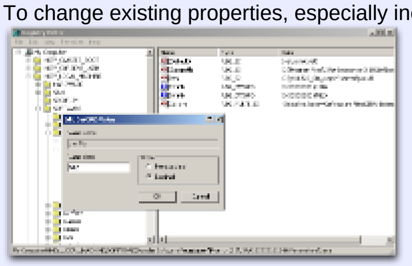
1. Go to {{Start >> Run, and run "regedit32.exe".



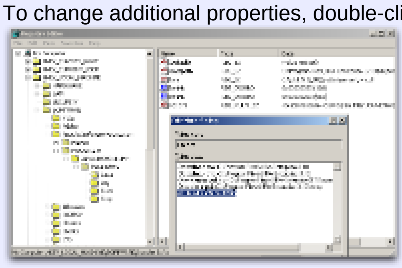
2. Find the Services entry:
32-bit: `HKEY_LOCAL_MACHINE >> SOFTWARE >> Apache Software Foundation >> Procrun 2.0 >> JIRA`
64-bit: `HKEY_LOCAL_MACHINE >> SOFTWARE >> Wow6432Node >> Apache Software Foundation >> Procrun 2.0 >> JIRA`



3. To change existing properties, especially increasing Xmx memory, double-click the appropriate value.



4. To change additional properties, double-click options.



5. Refer to the list of parameters below. Enter each on a separate line.

Verifying Your Settings

To verify what settings are in place, check the `<jira-home>/logs/atlassian-jira.log` or `catalina.out` file. A section in the startup appears like this:

```
JVM Input Arguments : -Djava.util.logging.config.file=/usr/local/jira/conf/logging.properties
-XX:MaxPermSize=256m -Xms256m -Xmx384m -Djava.awt.headless=true -Datlassian.standalone=JIRA
-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true -Dmail.mime.decodeparameters=true
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
-Djava.endorsed.dirs=/usr/local/jira/endorsed -Dcatalina.base=/usr/local/jira
-Dcatalina.home=/usr/local/jira -Djava.io.tmpdir=/usr/local/jira/temp
```

This display is also available by Viewing your System Information.

List of Startup Parameters

Memory Property	Notes	Related Pages

-Xmx -Xms XX:MaxPermSize	These properties are pre-existing. See related pages for instructions.	Increasing JIRA Memory
-XX:+PrintGCTimeStamps -verbose:gc -Xloggc:gc.log -XX:+HeapDumpOnOutOfMemoryError	Set these for Garbage Collection tuning.	Garbage Collection Performance Problems Using Memory Dumps to Analyze OutOfMemoryErrors
-agentlib:yjpagent=onexit=memory,dir=/path/to/write/snapshots		Profiling Memory and CPU Usage with YourKit
Mail Property	**Notes**	**Related Pages**
-Datlassian.mail.senddisabled -Datlassian.mail.fetchdisabled -Datlassian.mail.popdisabled	Set to 'true' to disable mail. In Linux setenv.sh, there is a pre-existing flag to uncomment.	Migrating JIRA to Another Server Notifications Are Issued for Incorrect Issues
-Dmail.debug	If set to "true", logs statements related to mail	Configuring JIRA to Send SMTP Mail Creating Issues and Comments from Email
-Dmail.mime.decodetext.strict		Unable to Decode Mail Subject or Body when Creating Issue From Email
-Dmail.imap.auth.plain.disable -Dmail.imaps.auth.plain.disable		Authenticate Failed Error when Connecting to Exchange
-Dmail.imap.starttls.enable		'javax.mail.MessagingException No login methods supported' Due to IMAP over SSL
-Dmail.mime.decodeparameters	Sets mail handler to work correctly with emails from RFC 2231-compliant mail clients.	Installing JIRA WAR-EAR Installing JIRA on Tomcat 5.5 JIRA 4.0 Upgrade Guide
-Dmail.smtp.localhost		Problems Sending Email from JIRA - EHLO requires domain address
Encoding Property	**Notes**	**Related Pages**
-Dfile.encoding	Set to utf-8 for encoding consistency	Integrating JIRA with CVS and ViewCVS Characters Not Supported by ASCII are Being Displayed as Question Marks Internalisation and Encoding Troubleshooting SQL Exception when Entering, Updating or Importing an Issue in JIRA with MySQL Due to Encoding International Characters in Notification Email Subject Lines Are Being Replaced with Question Mark
Other Properties	**Notes**	**Related Pages**
-Djira.trackback.senddisabled	When set to true, disables trackbacks	Enabling Trackback
-Duser.timezone		Incorrect Times Displayed in JIRA
-Dsvnkit.http.methods	Values include Basic,Digest,Negotiate,NTLM	JIRA Startup Fails Due to 'java.lang.SecurityException Unable to locate a login configuration' Subversion Plugin Displays 'An unknown error occurred - actions == null' Due to SVN Authentication
-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER	false	OutOfMemory Due to Tomcat Memory Leak JRA-10145

-ea/-da	Enable/Disable assertions	java.lang.AssertionError When Sending Mail Via SMTP
-Djava.net.preferIPv4Stack		SocketException to Announce 'Invalid argument' for an Available Port
-Djavax.net.ssl.trustStore		Connecting to SSL services Unable to Send Email 'javax.net.ssl.SSLException' Due to SMTP Server via SSL
-Djava.awt.headless	Ships with true by default. Allows thumbnail generation.	

Recognized System Properties for JIRA

JIRA supports some configuration and debugging settings that can be enabled through Java system properties. System properties are usually set by passing the `-D` flag to the Java virtual machine in which JIRA is running. See Setting Properties and Options on Startup.

List of Startup Parameters

Memory Property	Notes	Related Pages
-Xmx -Xms XX:MaxPermSize	These properties are pre-existing. See related pages for instructions.	Increasing JIRA Memory
-XX:+PrintGCTimeStamps -verbose:gc -Xloggc:gc.log -XX:+HeapDumpOnOutOfMemoryError	Set these for Garbage Collection tuning.	Garbage Collection Performance Problems Using Memory Dumps to Analyze OutOfMemoryErrors
-agentlib:yjpagent=onexit=memory,dir=/path/to/write/snapshots		Profiling Memory and CPU Usage with YourKit
Mail Property	**Notes**	**Related Pages**
-Datlassian.mail.senddisabled -Datlassian.mail.fetchdisabled -Datlassian.mail.popdisabled	Set to 'true' to disable mail. In Linux setenv.sh, there is a pre-existing flag to uncomment.	Migrating JIRA to Another Server Notifications Are Issued for Incorrect Issues
-Dmail.debug	If set to "true", logs statements related to mail	Configuring JIRA to Send SMTP Mail Creating Issues and Comments from Email
-Dmail.mime.decodetext.strict		Unable to Decode Mail Subject or Body when Creating Issue From Email
-Dmail.imap.auth.plain.disable -Dmail.imaps.auth.plain.disable		Authenticate Failed Error when Connecting to Exchange
-Dmail.imap.starttls.enable		'javax.mail.MessagingException No login methods supported' Due to IMAP over SSL
-Dmail.mime.decodeparameters	Sets mail handler to work correctly with emails from RFC 2231-compliant mail clients.	Installing JIRA WAR-EAR Installing JIRA on Tomcat 5.5 JIRA 4.0 Upgrade Guide
-Dmail.smtp.localhost		Problems Sending Email from JIRA - EHLO requires domain address
Encoding Property	**Notes**	**Related Pages**

-Dfile.encoding	Set to utf-8 for encoding consistency	Integrating JIRA with CVS and ViewCVS Characters Not Supported by ASCII are Being Displayed as Question Marks Internalisation and Encoding Troubleshooting SQL Exception when Entering, Updating or Importing an Issue in JIRA with MySQL Due to Encoding International Characters in Notification Email Subject Lines Are Being Replaced with Question Mark
Other Properties	**Notes**	**Related Pages**
-Djira.trackback.senddisabled	When set to true, disables trackbacks	Enabling Trackback
-Duser.timezone		Incorrect Times Displayed in JIRA
-Dsvnkit.http.methods	Values include Basic,Digest,Negotiate,NTLM	JIRA Startup Fails Due to 'java.lang.SecurityException Unable to locate a login configuration' Subversion Plugin Displays 'An unknown error occurred - actions == null' Due to SVN Authentication
-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER	false	OutOfMemory Due to Tomcat Memory Leak JRA-10145
-ea/-da	Enable/Disable assertions	java.lang.AssertionError When Sending Mail Via SMTP
-Djava.net.preferIPv4Stack		SocketException to Announce 'Invalid argument' for an Available Port
-Djavax.net.ssl.trustStore		Connecting to SSL services Unable to Send Email 'javax.net.ssl.SSLException' Due to SMTP Server via SSL
-Djava.awt.headless	Ships with true by default. Allows thumbnail generation.	

Advanced JIRA configuration with jira-application.properties

In JIRA, most commonly accessed configuration items are editable from Administration -> Global Settings -> General Configuration. The default values here are set in the file `WEB-INF/classes/jira-application.properties`. In addition, jira-application.properties contains other properties which are not editable from the web interface. Usually these are of little interest to most users, but sometimes you may wish to edit them.

A sample jira-application.properties file is available here.

Making changes to jira-application.properties

The process of changing this file depends on whether you are running JIRA Standalone (JIRA deployed as an 'open' webapp) or JIRA deployed as a packed '.war' file deployed in an app server.

JIRA Standalone

The file is located in `atlassian-jira/WEB-INF/classes/jira-application.properties`. Edit the file here, and then restart JIRA by running `bin\shutdown.bat` and `bin\startup.bat` (or .sh equivalents).

JIRA as a webapp

If you have downloaded the .WAR/Webapp distribution of JIRA:

1. Copy `webapp/WEB-INF/classes/jira-application.properties` to `edit-webapp/WEB-INF/classes/jira-application.properties`
2. Make your changes in `edit-webapp/WEB-INF/classes/jira-application.properties`

3. In the root directory, run build.bat or build.sh to regenerate the webapp (.war file)
4. Redeploy the new .war file in your app server.

See also

Setting Properties and Options on Startup — for changes like setting available memory, disabling email, enabling Jelly, etc.

Configuring File Attachments

When file attachments are enabled, your users will be allowed to attach files and screenshots to JIRA issues. This requires space on the server for storing the attachments.

⚠ Attachments are not stored in JIRA's database and so will need to be backed up separately.

File attachments are enabled by default. If you wish, you can configure the way JIRA handles attachments, or disable this feature altogether.

Note:

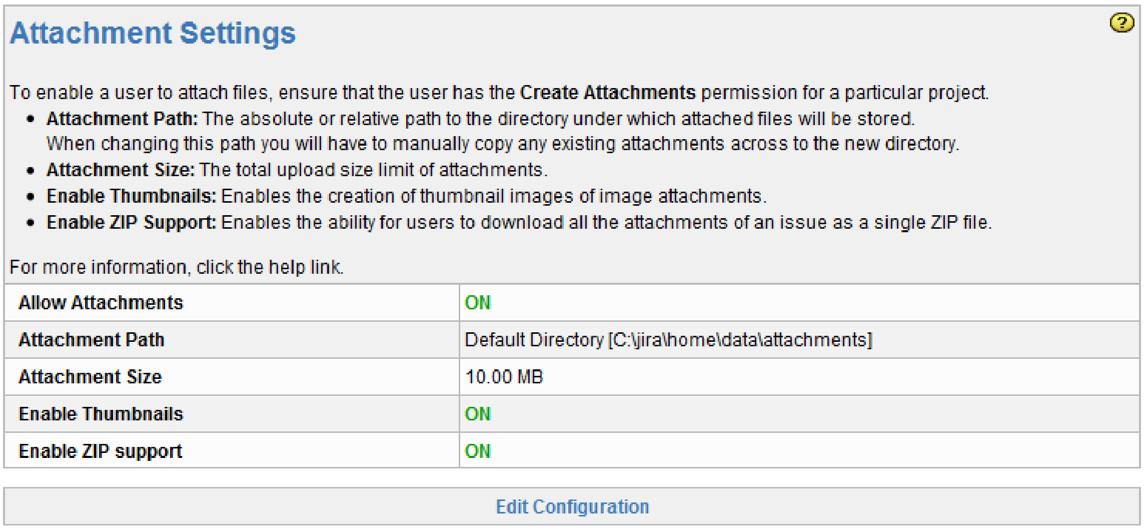
- your users must also have the **Create Attachments** permissions to attach files to issues
- to allow users to attach a file *when creating a new issue*, you need to ensure that the **'Attachment'** field is *not hidden* within the field configuration(s) associated with the specific issue type(s).

On this page:

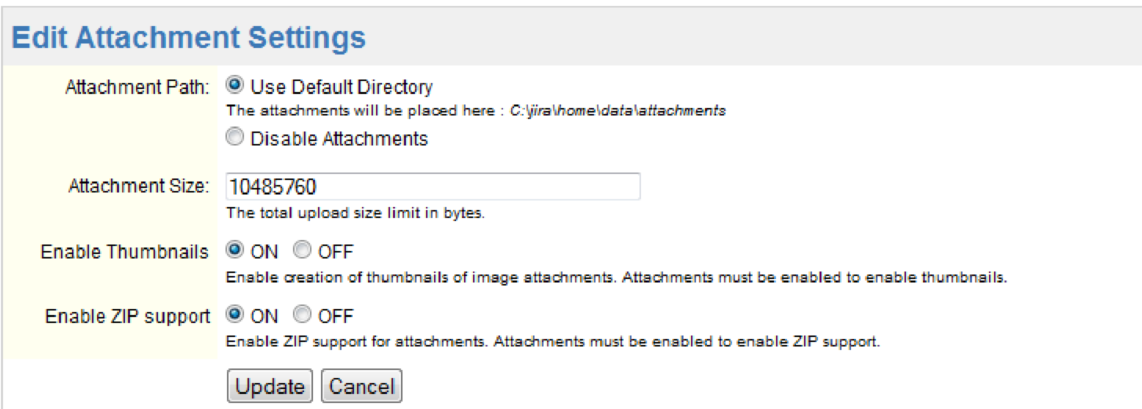
- Configuring Attachment Settings
- Advanced Configurations
    - Configuring Thumbnail Size
    - Configuring Attachment Numbers on Issues
    - Configuring ZIP-Format File Accessibility

Configuring Attachment Settings

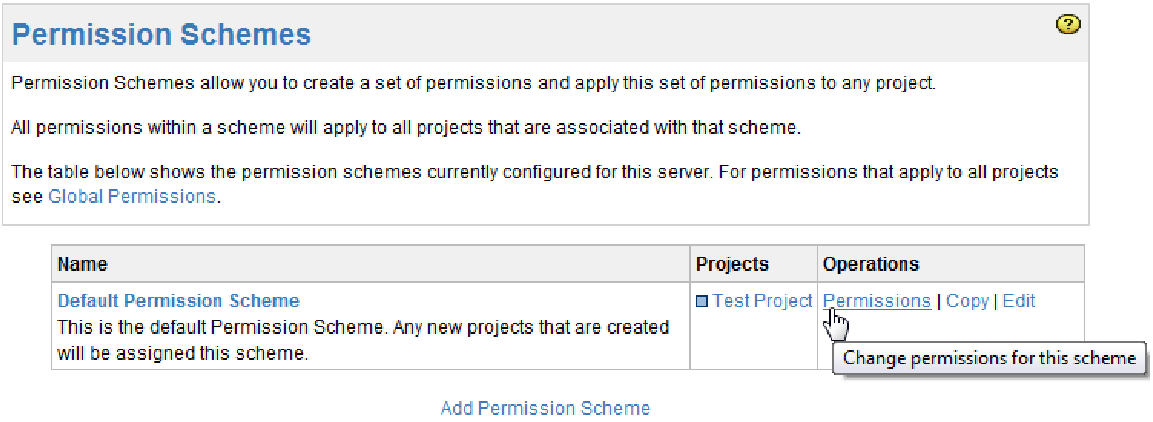
1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'Global Settings'** sub-menu in the left-hand navigation column, click the **'Attachments'** link. This will display the **Attachment Settings** page, which states whether attachments are on or off:



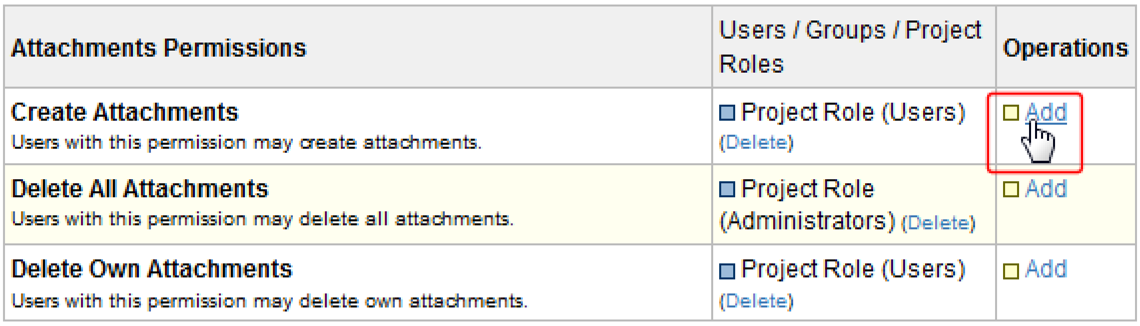
4. Click the **'Edit Configuration'** link, which will display **Edit Attachment Settings** page:



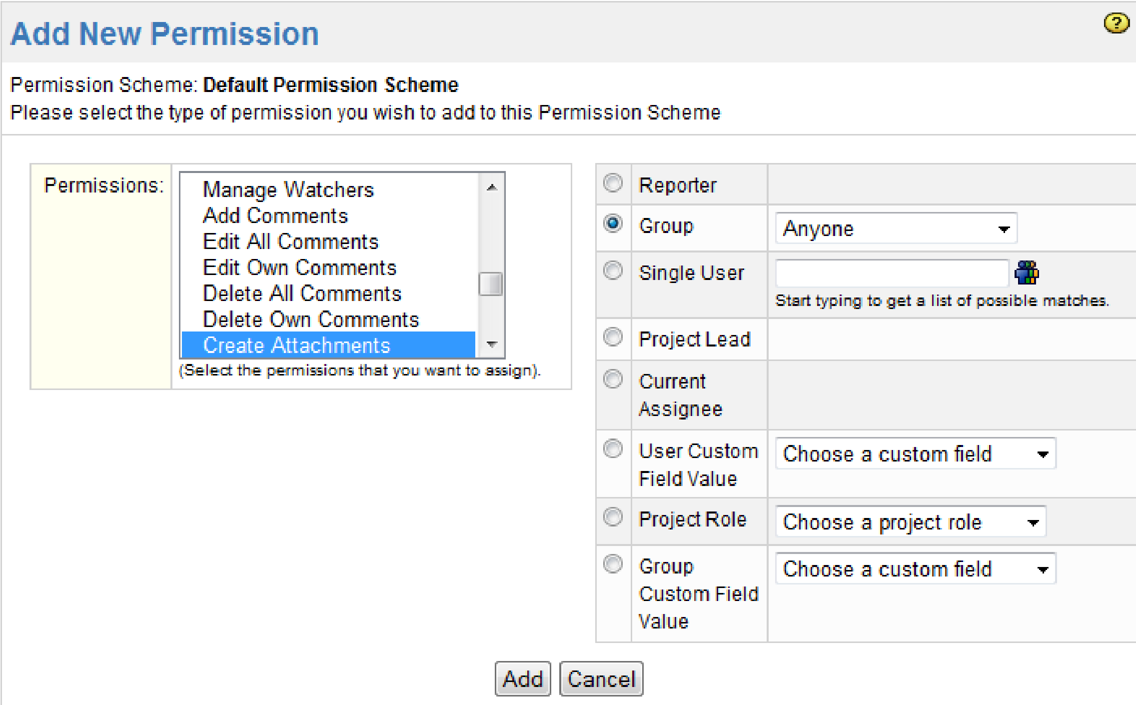
5. In the **'Attachment Path'** field, choose the '**Use Default Directory**' option. If you see more attachment path options than what is shown in the screenshot above, please refer to the note below.
6. In the **'Attachment Size'** field, specify the maximum attachment size. The default is 10485760 bytes (10 MB).
7. *(Optional)* In the '**Enable Thumbnails**' field, ensure that '**ON**' is selected if you wish to display image file attachments as thumbnails (or miniature previews) when viewing an issue. When this setting is enabled, JIRA automatically creates thumbnails of the following types of image attachments:
   - GIF
   - JPEG
   - PNG
   Please refer to the info note below for more information about thumbnails. If you use Linux, please refer to the Linux note below.
8. *(Optional)* In the '**Enable ZIP Support**' field, ensure that '**ON**' is selected if you wish to view the contents of zip files attached to an issue and allow all files attached to an issue to be downloaded as a single ZIP file.
9. Click the **'Update'** button to update JIRA's attachment settings.
   To attach files to issues, the appropriate users, groups or project roles must first be assigned the **Create Attachments** permission for the relevant project(s).
   To allow these users or group/project role members to delete their own attached files from issues, they must also be assigned the **Delete Own Attachments** permission for these projects too.
   There is no need to proceed any further if,
   - the permission schemes used by your project(s) already have the **Create Attachments** (and **Delete Own Attachments**) permission, or
   - your project(s) use JIRA's built-in **Default Permission Scheme**.
   However, if you wish to configure these permissions, proceed with the remaining steps below.
10. Under the '**Schemes**' sub-menu in the left-hand navigation column, click the **'Permission Schemes'** link. This will display a list of all permission schemes in your JIRA system, and the projects which use each scheme.
11. For each relevant permission scheme,
    a. Click the **'Permissions'** link to edit the scheme's permissions.



    b. On the **Edit Permissions** page, locate **Create Attachments** within the **Attachment Permissions** section and click the '**Add**' link.



    c. In the user selection options on the right of the **Add New Permission** page, select the relevant (groups of) users or roles and then click the **'Add'** button.



To allow these users or group/project role members to delete their own attachments, do not forget to assign them the **Delete Own Attachments** permission too.

Choosing a custom Attachment Path:

If you upgraded JIRA with an XML backup from a JIRA version prior to 4.2 and used a custom directory for your attachment path, you can choose between using this custom directory (which cannot be edited) or the default directory for your attachment path location. However, once you switch to using the default directory, you can no longer choose the custom directory option.

(The default directory location is the `data/attachments` subdirectory of the JIRA home directory.)

More information about thumbnails:

- You can configure the Issue Navigator column layout to display the thumbnails in an `Images` column.
- All thumbnail images are stored in JPEG format in the `attachments` directory, together with the original attachments. The thumbnail images are denoted by '**`_thumb_`**' in their file names.

Thumbnail image generation on Linux:

- Your system must have X11 support. This web page details the minimum set of libraries needed to use JDK 1.4.2 under RedHat Linux 9.0.
- The following java system property must be set: `-Djava.awt.headless=true`

Advanced Configurations

You can implement additional tweaks (described below) to modify the way JIRA handles attachments. These tweaks cannot be modified through JIRA's attachment settings (above). Instead, they are implemented by editing specific properties in the `jira-application.properties` file.

Configuring Thumbnail Size

By default, thumbnails are 200 pixels wide and 200 pixels high. To change the dimensions of thumbnail images:

1. Stop JIRA.
2. In the `jira-application.properties` file, edit the values of the following properties:
   - `jira.thumbnail.maxwidth` — thumbnail width in pixels
   - `jira.thumbnail.maxheight` — thumbnail height in pixels
3. Delete all existing thumbnail images within the `attachments` directory (that is, those containing '**`_thumb_`**' in the filename).
4. Restart JIRA.

After restarting JIRA, all thumbnails will be recreated automatically using the new dimensions.

Configuring Attachment Numbers on Issues

By default, JIRA shows a maximum of 30 attachments on an issue. To change this maximum value:

1. Stop JIRA.
2. In the `jira-application.properties` file, edit the value of the `jira.attachment.number.of.zip.entries` property to the maximum number of attachments you want to show on an issue.
3. Restart JIRA.

Configuring ZIP-Format File Accessibility

By default, JIRA allows you to access common ZIP-format files, with file extensions like '`.zip`' and '`.jar`' (Java archive files). However, there are numerous other ZIP-format files to which JIRA does not permit access by default. You can permit access to these files by doing the following:

1. Stop JIRA.
2. In the `jira-application.properties` file, remove the extensions from the `jira.attachment.do.not.expand.as.zip.extensions.list` property of the file types whose contents you wish to access in JIRA.
3. Restart JIRA.

Configuring Sub-tasks

Sub-Task issues are generally used to split up a parent issue into a number of tasks which can be assigned and tracked separately. (For details, see Creating a Sub-Task.)

Sub-Tasks have all the same fields as standard issues, although note that their 'issue type' must be one of the *Sub-Task issue types* (see below) rather than one of the standard issue types.

If Sub-Tasks are enabled and you have defined at least one Sub-Task issue type, your users will be able to:

- create Sub-Tasks.
- convert issues to Sub-Tasks (and vice versa).

On this page:

- Disabling Sub-Tasks
- Enabling Sub-Tasks
- Defining Sub-Task issue types
- Blocking Issue workflows by Sub-Task status
- Configuring Sub-Task fields
  - Choosing which Sub-Task fields to display on the Parent Issue
  - Choosing which fields to display in the 'Add Sub-Task' form

Disabling Sub-Tasks

Sub-tasks are enabled by default. However, this feature can be disabled from the **Sub-Tasks** administration page.
Sub-Tasks will be disabled by default if your JIRA installation was upgraded from a version prior to 4.2 that had Sub-Tasks disabled.

To disable Sub-Tasks:

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title **Global Settings**, click the link labelled '**Sub-Tasks**' to open the **Sub-Tasks** administration page.
4. Click the '**Disable**' link. The page should reload and inform you that the Sub-Tasks are now disabled.

> Sub-tasks cannot be disabled if one or more Sub-Tasks exist in the system. You must remove any existing Sub-Tasks (or convert them to standard issues) before you can disable this feature.

Enabling Sub-Tasks

Sub-tasks can be enabled from the Sub-Task administration screen.

To enable Sub-Tasks:

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title **Global Settings**, click the link labelled '**Sub-Tasks**' to open the **Sub-Tasks** administration page.
4. Click the '**Enable**' link. The page will reload and inform you that the Sub-Tasks are now enabled.

A default Sub-Task issue type is automatically available for use. You can edit it by selecting the **Edit** link in the **Operations** column.

Defining Sub-Task issue types

Sub-tasks must be assigned one of the *Sub-Task issue types*, which are different to standard issue types. Please note that you must define at least one Sub-Task issue type before users can create Sub-Tasks.

Sub-task issue types can be customised on the **Sub-Tasks** administration page (described above). The **Sub-Tasks** administration page also allows you to create, delete, edit, translate and choose icons for your Sub-Task issue types. For details, please see Defining Issue Types.

Blocking Issue workflows by Sub-Task status

It is possible to restrict the progression of an issue through workflow depending on the status of the issue's Sub-Tasks. For example, you might need to restrict an issue from being resolved until all of its Sub-Tasks are resolved. To achieve this, you would create a custom workflow and use the *Sub-Task Blocking Condition* on the workflow transitions that are to be restricted by the Sub-Tasks' status.

Configuring Sub-Task fields

You can choose which subtask fields are displayed in the 'Sub-Tasks' section of an issue, by customising the `jira-application.properties` file — see Advanced JIRA configuration with jira-application.properties.

Choosing which Sub-Task fields to display on the Parent Issue

- To customise the Sub-Task columns that appear on the parent issue's **View Issue** screen, edit `jira.table.cols.subtasks`

Choosing which fields to display in the 'Add Sub-Task' form

- To customise the Sub-Task 'Quick Create' form, edit `jira.subtask.quickcreateform.fields` (for a list of available fields to include, see Displaying Search Results in XML)

Configuring Issue Linking

On this page:

- About Issue Linking
- Adding a Link Type
- Editing or Deleting a Link Type
- Disabling Issue Linking

About Issue Linking

Issue Linking allows you to create an association between issues. For instance, an issue may *duplicate* another, or its resolution may *depend* on another's. New installations of JIRA come with four default types of links:

- "relates to" / "relates to"
- "duplicates" / "is duplicated by"
- "blocks" / "is blocked by"
- "clones" / "is cloned by" (this is used when issues are cloned)

You can add, edit or delete link types to suit your organisation, as described below.

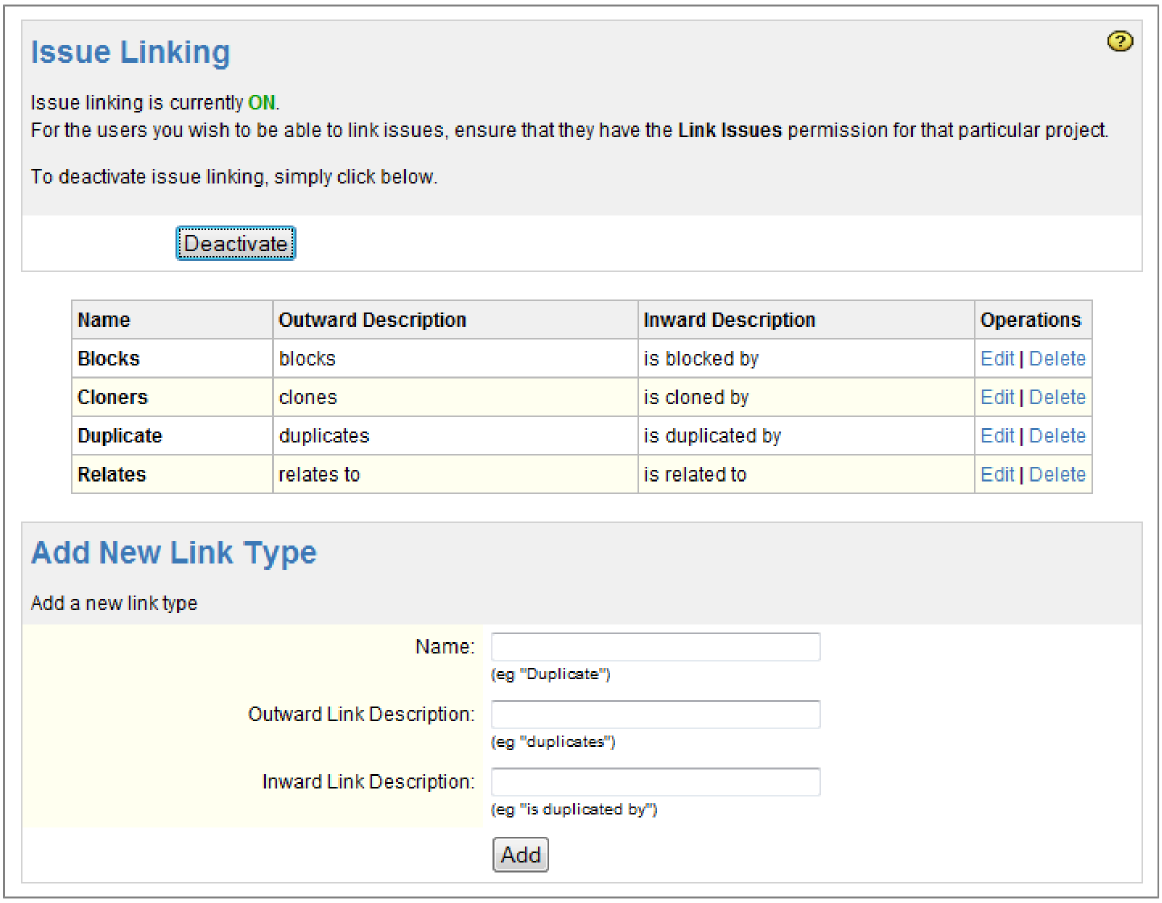
Note:

- Your users must have the **Link Issues** permission before they can link issues.
- Issue linking is enabled by default. If your organisation does not require the ability to link issues, you can disable it globally for all users as described below.

Adding a Link Type

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the panel on the left, under the title '**Global Settings**', click '**Issue Linking**'.
4. The '**Issue Linking**' page will be displayed (see screenshot below). At the bottom of the page is a form titled 'Add New Link Type'.
5. To create a new link type, e.g. "Causes":
    - enter "Causes" in the '**Name**' text field
    - enter "causes" in the '**Outward Link Description**' text field
    - enter "is caused by" in the '**Inward Link Description**' text field
6. Click the '**Add**' button.
7. This returns to the '**Issue Linking**' page, with a new section listing the "Causes" link type.

Screenshot: the "Issue Linking" administration page



Editing or Deleting a Link Type

It is recommended that you do not edit or delete the 'Clones' link type, as this is used to automatically link issues when they are cloned.

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the panel on the left, under the title '**Global Settings**', click '**Issue Linking**'.
4. The '**Issue Linking**' page will be displayed (see screenshot above). Locate the link type you wish to edit or delete, and click the word '**Edit**'/'**Delete**' in the 'Operations' column.

Disabling Issue Linking

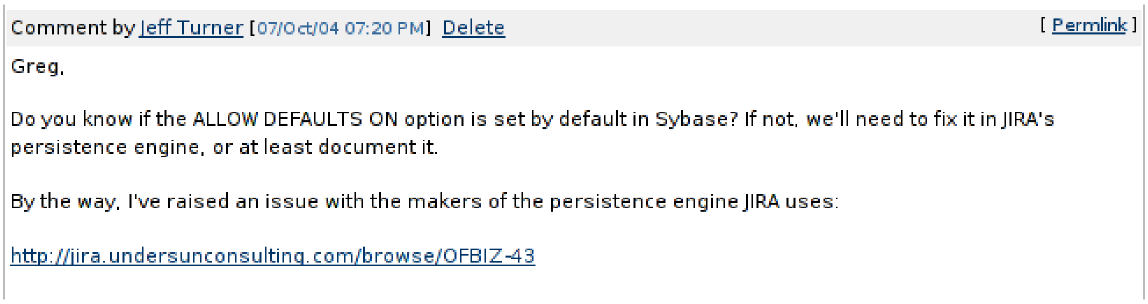
To disable issue linking for your entire JIRA site, for all users:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. In the panel on the left, under the title '**Global Settings**', click '**Issue Linking**'.
4. The '**Issue Linking**' page will be displayed (see screenshot above). A status message indicates whether linking is enabled. If it is, click the '**Deactivate**' button.
5. You will be shown the '**Issue Linking**' page again, this time stating that linking is disabled.

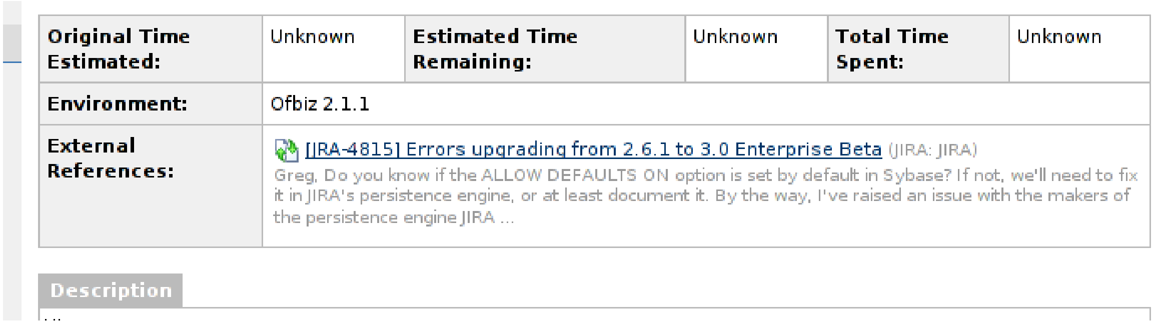
Enabling Trackback

Trackback linking is a means by which a page can *tell another page* that it has been linked to. (To learn more about how trackback works, please have a look at the Trackback specification).

For instance, say that a user writes a URL in a JIRA comment:



If the URL is to a trackback-enabled web application like a weblog, Confluence page or another JIRA site, the linked-to page will be told that it was linked to, and can automatically create a link back to the linker:



> **Note**
> When linking *to* a JIRA instance, make sure its **base URL is correct.** (To check a JIRA instance's 'Base URL', go to **'General Configuration'** under **'Global Settings'** in the **'Administration'** menu.)

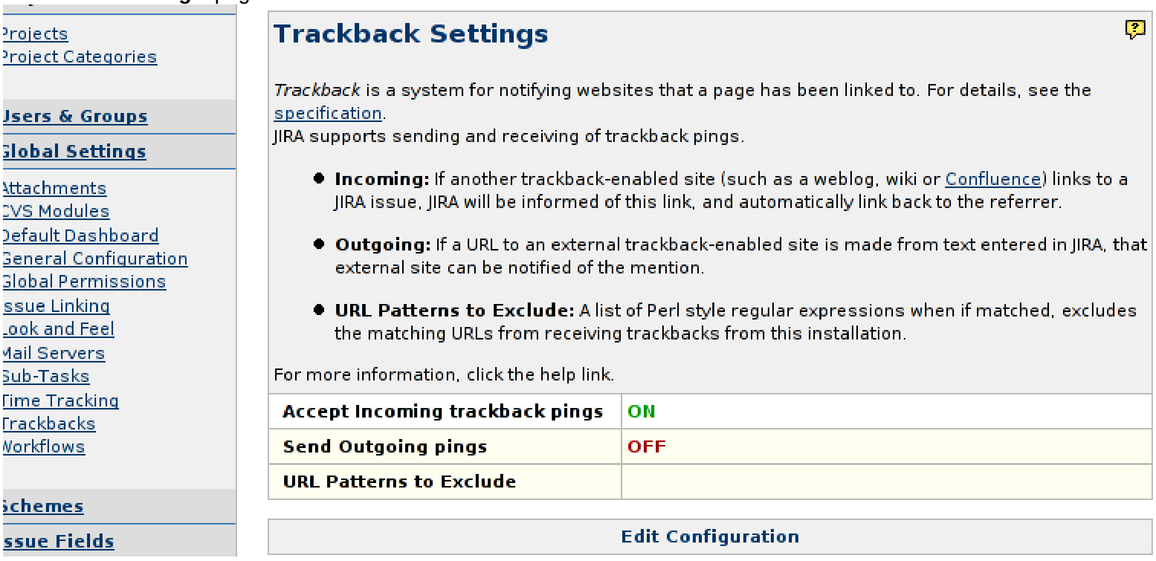
Configuring trackbacks

In JIRA, you can configure whether to:

- display links to external pages that link to your pages (accept incoming trackback pings)
- notify external pages that they have been linked to (send outgoing pings)
  The default configuration is to display incoming links, but not notify external pages.

To configure trackbacks:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'Global Settings'** sub-menu in the left-hand navigation column, click the **'Trackbacks'** link. This will display the **'Trackback Settings'** page:



4. Click the **'Edit Configuration'** link.
5. In the **'Accept Incoming Trackback Pings'** field, select **'ON'** to enable trackbacks.
6. In the **'Send Outgoing Trackback Pings'** field, either:
    - select **'On for all issues'** to always notify external sites that they have been linked to.
    - select **'On for public issues only'** to only notify external sites that they have been linked to if the issue is publicly visible.

- select **'Off'** to never notify external sites that they have been linked to.

7. *(Optional)* In the **'URL Patterns to Exclude'** field, specify the URLs of any sites which you always want to exclude from being notified that they have been linked to. Use regular expressions (one per line), e.g.: **`.server.domain.com..server2.domain.com..domain2.com.`**
8. Click the **'Update'** button.

Temporarily disabling trackbacks

Trackback pings can be disabled (e.g. during a data import) by setting the **jira.trackback.senddisabled=true** flag on startup.

Configuring Time Tracking

JIRA's Time Tracking feature enables users to record the time they spend working on issues (see Logging Work on an Issue).

Note: Before users can specify time estimates and log work, they must be granted the **Work On Issues** permission for the relevant project(s).

On this page:

- Disabling Time Tracking
- Enabling Time Tracking
- Configuring Time Tracking Settings
- About 'Legacy Mode'
- RELATED TOPICS

Disabling Time Tracking

Time Tracking is ON by default (as shown in screenshot 1 below). However, this feature can be disabled from the **Time Tracking** administration page.

Time tracking will be OFF by default if your JIRA installation was upgraded from a version prior to 4.2 that had time tracking either disabled or never enabled.

To disable Time Tracking,

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title **Global Settings**, click on the link labelled '**Time Tracking**' to open the **Time Tracking** administration page.
4. Click the '**Dectivate**' button to turn Time Tracking OFF.

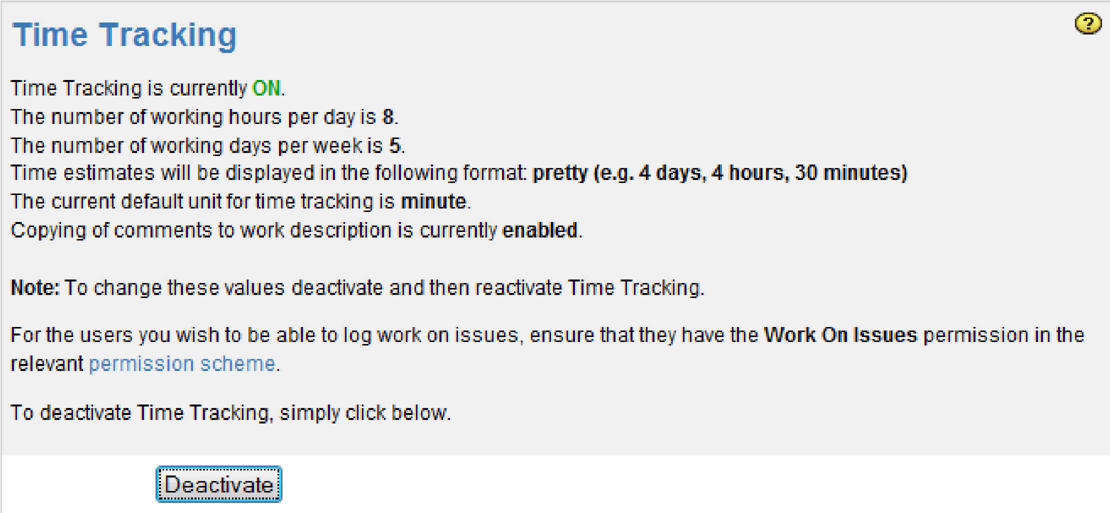
You will not lose any existing Time Tracking data by disabling/re-enabling Time Tracking.

Enabling Time Tracking

To enable Time Tracking,

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title **Global Settings**, click on the link labelled '**Time Tracking**' to open the **Time Tracking** screen.
4. Click the '**Activate**' button to turn time tracking ON.

Screenshot 1: Time Tracking is ON



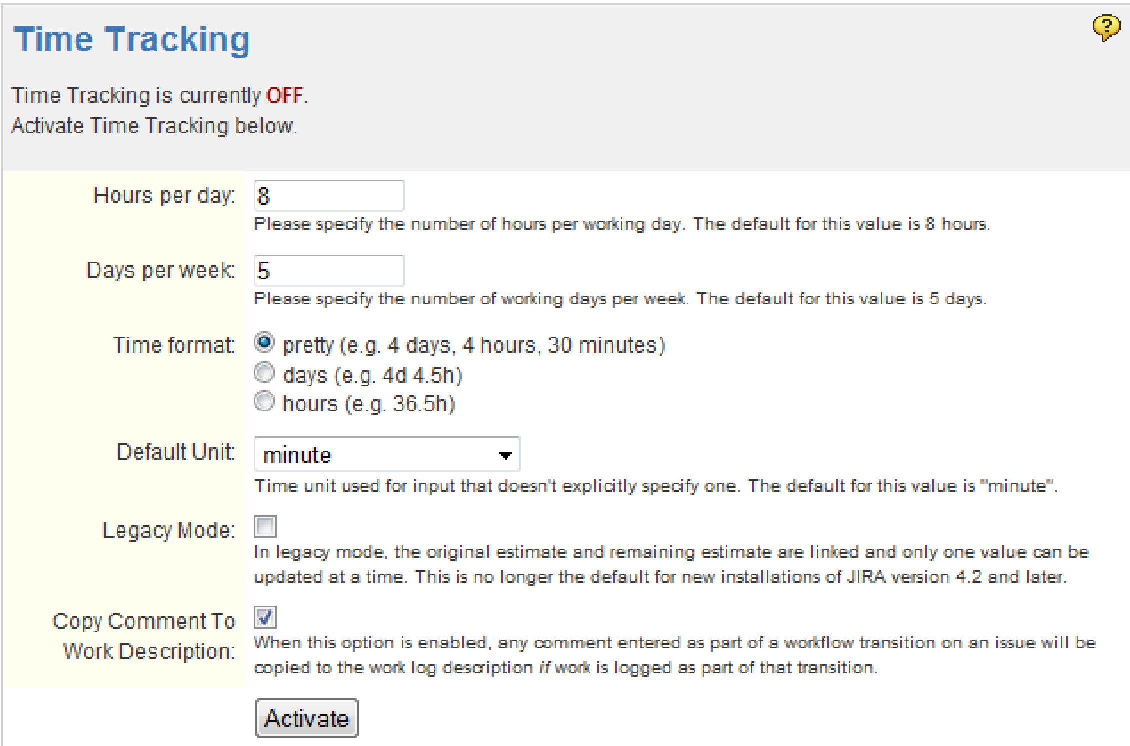
Configuring Time Tracking Settings

To edit JIRA's **Time Tracking** settings, it must first be disabled. Once you have changed the settings, you will then need to re-enable Time Tracking so that users can log work on issues.

You will not lose any existing Time Tracking data by disabling/re-enabling Time Tracking.

To configure Time Tracking settings:

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard.
3. On the panel on the left, under the title **Global Settings**, click on the link labelled '**Time Tracking**' to open the **Time Tracking** screen.
4. If Time Tracking is ON (refer to the indication at the top of the **Time Tracking** screen), click the '**Deactivate**' button to turn Time Tracking OFF.
5. The Time Tracking settings will now be editable as shown in the following screenshot.
   Screenshot 2: Time Tracking is OFF



6. Configure Time Tracking settings by editing the following fields:
   - **Hours Per Day** — enter a suitable value (e.g. 8). You can enter fractions if you wish.
   - **Days Per Week** — enter a suitable value (e.g. 5). You can enter fractions if you wish.
   - **Time Format** — select **pretty/days/hours**. This will determine the format of the 'Time Spent' field when an issue is displayed.

  - **Default Unit** — select **minutes/hours/days/weeks**. This will be applied whenever your users log work on an issue without specifying a unit.
  - **Legacy Mode** — select this check box if you prefer to use JIRA's time tracking features as they operated prior to JIRA version 4.2. For more details about this option, please see About 'Legacy Mode' (below).
  - **Copy Comment To Work Description** — select this check box to ensure that any content entered into a **Comment** field while logging work as part of an issue operation, is also copied across to the **Work Description**.

    When **Copy Comment To Work Description** is enabled, your user's work log entries will be visible only to members of the project role or group selected in the padlock icon dropdown on their issue operation screen. If **Copy Comment To Work Description** is disabled, your user's work log entries will be visible to anyone by default.

7. Click the '**Activate**' button to turn time tracking ON.
   If the permission schemes used by your project(s) already have the appropriate **Work On Issues** permissions, then there is no need to proceed any further.
   However, if you need to configure these permissions, proceed with the remaining steps below:
8. Click the '**permission scheme**' link as shown in screenshot 1 (above). The **Permissions Scheme** page will be displayed.
9. Click the '**Permissions**' link of the permission scheme associated with the project(s) where you wish to specify **Work On Issues** permissions. The **Edit Permissions** page is displayed for your chosen permission scheme.
   See Managing Project Permissions for details about the various permissions.
10. Check whether the row labelled **Work On Issues** contains the appropriate users, groups or project roles who need to specify time estimates or log work. If it does not, click the '**Add**' link in the **Operations** column:
    Screenshot 3: Time Tracking Permissions

Time Tracking Permissions	Users / Groups / Project Roles	Operations
Work On Issues Ability to log work done against an issue. Only useful if Time Tracking is turned on.	Project Role (Developers) (Delete) Group (jira-users) (Delete)	Add

11. Select the users, groups or project roles to whom you want to allow time tracking and work logging on issues.
12. Click the '**Add**' button.

About 'Legacy Mode'

- If Legacy Mode is disabled, your users will be able to change the **Original Estimate** value *irrespective of any work being logged on an issue*. Legacy Mode is disabled by default on new installations of JIRA version 4.2 or later.
- If Legacy Mode is enabled, your users can only specify an **Original Estimate** *before* they start logging work on an issue. This value cannot be changed once *any* work has been logged, unless all work logs for that issue are first deleted.
- By default,
  - **Legacy Mode** is disabled if your JIRA 4.2 installation was conducted cleanly (that is, without upgrading from an earlier version of JIRA).
  - **Legacy Mode** is enabled if you upgraded JIRA from a version prior to 4.2.
- Please refer to the Logging Work on an Issue and the JIRA 4.2 Release Notes for more information about logging work and modifying time estimates.

RELATED TOPICS

- Please see the section *"Adding Time Tracking capabilities to a screen"* on this page: Defining a Screen.

Configuring the Whitelist

- What is the 'Whitelist'?
- Editing the Whitelist

What is the 'Whitelist'?

For security reasons, you as an administrator may wish to limit the URLs from which users can source content that is displayed on your JIRA site (e.g. in an External Gadget). The JIRA 'Whitelist' is a list of URLs whose content you wish to make available to users of your JIRA site.

You can add URLs (or URL patterns) to your whitelist as described below. Alternatively, if your JIRA site and users do not have access to the internet, you can choose to 'Allow all URLs' (see below).

Note that URLs for which Application Links are configured are automatically whitelisted, so you do not need to add them to this list.

Editing the Whitelist

You can list specific URLs (or URL patterns) from which content will be allowed onto your JIRA site.

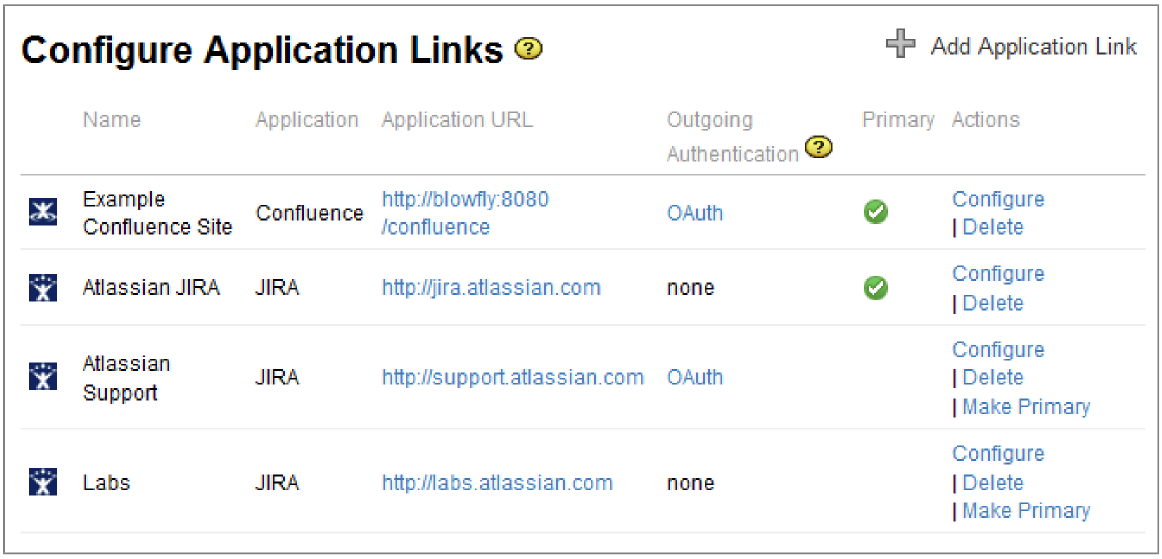
Select 'Restrict to whitelisted URL patterns' and use the form below to list specific URLs or URL patterns that will be allowed. If you select 'Allow all URLs', content can be included from any URL, including possibly malicious content.

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.

3. In the left-hand panel, under the title **'System',** click the **'Whitelist'** link. The **'Whitelist'** page will be displayed, showing a list of URLs (or URL patterns).
4. You can either:
    - Select '**Restrict to whitelisted URL patterns**' and use the form below to list specific URLs or URL patterns that will be allowed.
        - Enter URL patterns to describe valid content sources. Enter one pattern per line according to the following format:
            - if the pattern starts with '=', only the exact URL following the '=' will be allowed
            - if the pattern starts with '/' then the whole pattern will be treated as a regular expression
            - otherwise, * characters in the pattern will be treated as wildcards to match 1 or more characters
        - For example, if you want to allow all requests to http://www.atlassian.com, enter the following rule:
            - http://www.atlassian.com/*
    - Select '**Allow all URLs**'. This will allow content to be included from any URL, including potentially malicious content.

Configuring Application Links

An application link is a trust relationship between two applications. Linking two applications allows you to share information and access one application's functions from within the other.



Configure Application Links

Add Application Link

	Name	Application	Application URL	Outgoing Authentication	Primary	Actions
	Example Confluence Site	Confluence	http://blowfly:8080/confluence	OAuth	✓	Configure | Delete
	Atlassian JIRA	JIRA	http://jira.atlassian.com	none	✓	Configure | Delete
	Atlassian Support	JIRA	http://support.atlassian.com	OAuth		Configure | Delete | Make Primary
	Labs	JIRA	http://labs.atlassian.com	none		Configure | Delete | Make Primary

Screenshot above: Application links on a JIRA server

Related Topics

For information on integrating JIRA with other applications, see the following topics:

- Adding an Application Link
- Configuring Authentication for an Application Link
- Editing an Application Link
- Making an Application Link the Primary Link
- Relocating an Application Link
- Upgrading an Application Link
- Deleting an Application Link
- Configuring Link Rendering
- Configuring Entity Links for an Application Link

Adding an Application Link

This page describes how to add a new application link in JIRA. The process for adding an application link is different depending on whether or not the application you are linking JIRA to supports Atlassian's Unified Application Links (UAL).

If you are linking JIRA to an application without UAL, you will need to perform additional configuration steps in that application, since UAL in JIRA is unable to automatically configure authentication in non-UAL applications.

Please read the appropriate set of instructions below:

- Linking to an application that supports UAL.
- Linking to an application that does not support UAL.

On this page:

- Adding an Application Link to an Application That Supports UAL
- Adding an Application Link to an Application That Does Not Support UAL
- Notes

Adding an Application Link to an Application That Supports UAL

Before you begin:

- Make sure that the base URL is set correctly in JIRA. See Configuring JIRA Options for instructions.
- Make sure that the base URL is set correctly in the application which you intend to link to. See the appropriate instructions: Confluence instructions | FishEye/Crucible instructions | Bamboo instructions). This is required for synchronisation to work correctly.

To link to an application that supports UAL:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click '**Add Application Link**'. The 'Link to another server' dialogue will be displayed.
3. Enter the server URL of the application that you want to link to, in the '**Server URL**' field. Click the '**Next**' button. The 'Link to Reference Application' dialogue will be displayed.
4. Fill out the fields, as follows:
    - Tick the '**Create a link back to this server**' checkbox, if you want to create a "two-way" link (i.e. also create a link from the remote server back to your application). If you want to do this, you will need to enter the '**Username**' and '**Password**'of an administrator for the remote server (if you are not logged into the remote server already):
      Please note, these credentials are only used to authenticate you to the remote server, so that UAL can make the changes required for the new link. The credentials are not saved.
    - '**Accessible URL of this application for the reciprocal link**' — This is the URL that is used for features like link rendering. You may have used a server URL that is not accessible to other users in the previous 'Link to another server' dialogue, e.g. an internal IP address. If so, you can change the accessible URL to an address in a domain that is available to other users.
5. Click the '**Next**' button. The 'Set Users and Trust' dialogue will be displayed.
6. Fill out the fields to configure authentication for your application link, as follows:
   For more information about configuring authentication, see Configuring Authentication for an Application Link.
    - Select either '**The servers have the same set of users**' or '**The servers have different sets of users**' depending on how you manage users between the two applications.
    - Tick the '**These servers fully trust each other**', if you know that the code in both applications will behave itself at all times and are sure each application will maintain the security of its private key.
7. Click the '**Create**' button to create the application link. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application including the one you just added.

Step 1
Step 2
Step 3

Screenshots above: Adding an application link to an application that supports UAL (click to view full-sized images)

Adding an Application Link to an Application That Does Not Support UAL

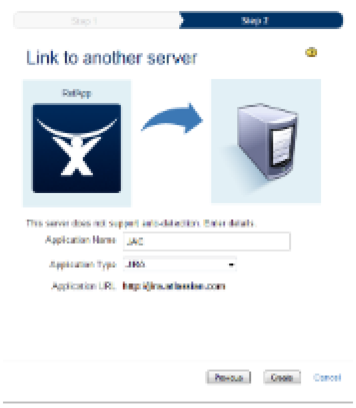
Before you begin:

- Make sure that the base URL is set correctly in JIRA. See Configuring JIRA Options for instructions.
- Make sure that the base URL is set correctly in the application which you intend to link to. See the appropriate instructions: Confluence instructions | FishEye/Crucible instructions | Bamboo instructions). This is required for synchronisation to work correctly.

To link to an application that does not support UAL:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click '**Add Application Link**'. Step 1 of the 'Link to another server' dialogue will be displayed.
3. Enter the server URL of the application that you want to link to, in the '**Server URL**' field. Click the '**Next**' button. Step 2 of the 'Link to another server' dialogue will be displayed.
4. Fill out the fields, as follows:
    - '**Application Name**' — Enter the name by which this remote application will be referred to, in your application.

    - '**Application Type**' — Select the type of application that you are linking to: Bamboo, FishEye/Crucible, JIRA, Confluence, Subversion.
    - '**Application URL**' — This is the URL that is used for features like link rendering. This will be set to the server URL you entered in the previous step and will not be editable.
5. Click the '**Create**' button to create the application link. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application including the one you just added.
6. Configure the desired authentication (trusted apps, OAuth, basic http, none) for your new application link using UAL. See Configuring Authentication for an Application Link.
7. In your application that does not support UAL, configure the same type of authentication that you configured for your application link's *outgoing* authentication (in the previous step). For example, if you configured outgoing trusted apps authentication in your UAL-enabled application, you also need log into your non-UAL application and manually configure trusted apps (see the relevant administrator's documentation for the application).



Step 1
Step 2

Screenshots above: Adding an application link to an application that supports UAL (click to view full-sized images)

Notes

Related Topics

- Making an Application Link the Primary Link
- Configuring Authentication for an Application Link
- Configuring Entity Links for an Application Link

Configuring Authentication for an Application Link

Configuring authentication for an application link is essentially defining the level of trust between JIRA and another application.

On this page:

- Choosing Authentication for an Application Link
- Security Implications for each Authentication Type
- About Primary Authentication Types
- About Impersonating and Non-Impersonating Authentication Types

Choosing Authentication for an Application Link

The level of authentication that you should configure for your application link depends on a number of factors.

- **Do the two applications you are linking trust each other?** i.e. are you sure that the code in the application will behave itself at all times and that the application will maintain the security of its private key?
- **Do the two applications you are linking share the same set of users *and* user names?**
- **Do you have administrative access to the application you are linking to JIRA?**

Common scenarios include:

- If the two applications you are linking **trust each other** and **share the same set of users *and* user names**, configure **two-way authentication using Trusted Apps** for both incoming and outgoing authentication. For example, you may link your internal JIRA server to an internal FishEye server.
- If the two applications you are linking **trust each other** but **do not share the same set of users *or* user names**, configure **two-way authentication using OAuth** for both incoming and outgoing authentication. For example, you may link your internal JIRA server to an external (customer-facing) Confluence server.
- If you **do not have administrative rights to the application that you are linking to** (e.g. linking to a public FishEye server), configure a **one-way outgoing link** authenticated using **basic HTTP authentication** or **do not configure any authentication** for the link. For example, you may link your external Confluence server to a partner organisation's Confluence server. An unauthenticated link will still allow the local application to render hyperlinks to the remote application or query anonymously-accessible APIs.

The flowchart below provides a guide to what authentication you should configure for your application link.

Read the following topics for information on how to configure authentication for an application link:

- Configuring Basic HTTP Authentication for an Application Link
- Configuring OAuth Authentication for an Application Link
- Configuring Trusted Apps Authentication for an Application Link

Full Size

Flowchart above: Determining what authentication to configure for an Application Link

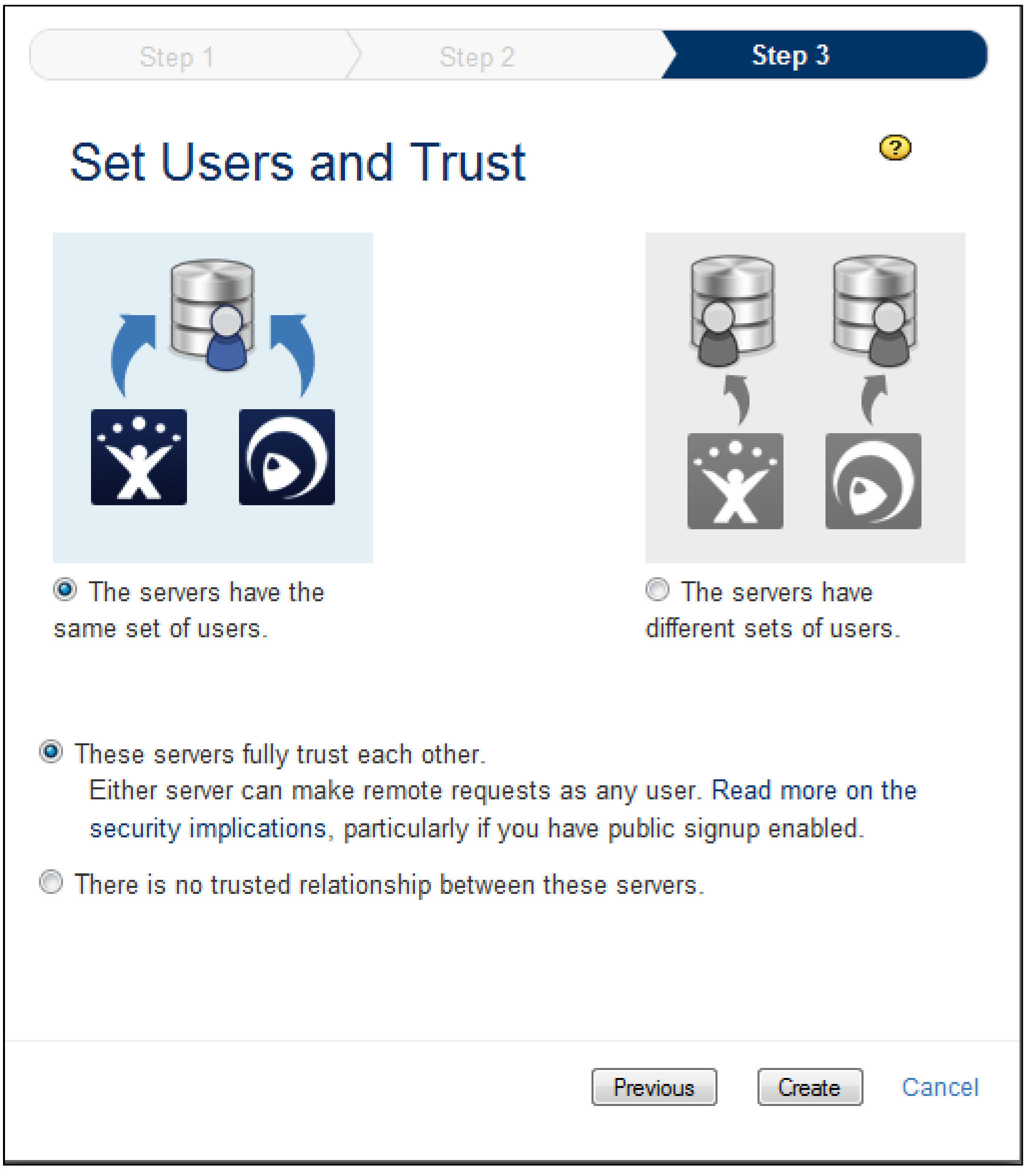
Security Implications for each Authentication Type

If you configure **Trusted Apps authentication** (i.e. both applications fully trust each other and have the same set of users *and* user names), please be aware of the following security implications:

- Trusted applications are a **potential security risk**. When you configure trusted apps authentication, you are allowing one application to access another as any user. This allows all of the built-in security measures to be bypassed. Do not configure a trusted application unless you know that all code in the application you are trusting will behave itself at all times, and are sure that the application will maintain the security of its private key.

If you configure **OAuth authentication** (i.e. both applications fully trust each other but have different sets of users or user names), please be aware of the following security implications:

- Adding an OAuth consumer requires the transmission of sensitive data. To prevent 'man-in-the-middle' attacks, it is recommended that you **use SSL** for your applications while configuring OAuth authentication.
- Do not link to an application using OAuth authentication, unless you **trust all code in the application** to behave itself at all times. OAuth consumers are a potential security risk to the applications that they are linked to.



Screenshot above: Configuring authentication during application link setup

About Primary Authentication Types

Multiple authentication types can be configured for each Application Link using Unified Application Links (UAL). When a feature makes a request using an Application Link, it will use one of the configured authentication types. If more than one authentication type is configured, it will (by default) use the authentication type that is marked as the primary authentication type. The default authentication type is indicated by the green tick next to the authentication type on the list application link screen.

You **cannot** configure which authentication type is the primary authentication type. The primary authentication type is determined automatically by UAL and depends on a weight defined by each authentication type method. However, every feature that uses UAL can also choose to use a specific authentication type and might not use the default primary authentication type method.

About Impersonating and Non-Impersonating Authentication Types

UAL makes the following distinction between authentication type methods:

- **Impersonating authentication types** will make requests on behalf of the user that is currently logged in. This includes OAuth and Trusted Apps authentication.
- **Non-impersonating authentication types** always use a pre-configured user when making a request. This includes basic HTTP authentication.

To determine which is the right authentication type to configure, you should refer to the documentation for the feature that is using UAL.

In general, **impersonating authentication types** are a good fit for the following:

- A feature with functionality that displays information that is only visible to the logged in user from a remote application.
- A feature with functionality where actions are performed on behalf of the current user in the remote server.

In general, **non-impersonating authentication types** are a good fit for the following:

- A feature that relies on having a certain permission at the remote application, regardless of whether the current logged-in user has the permission.

Configuring Basic HTTP Authentication for an Application Link

The instructions on this page describe how to configure **Basic HTTP authentication** for outgoing authentication and/or incoming authentication for an application link.

Basic HTTP authentication allows JIRA to provide user credentials to a remote application and vice versa. Once authenticated, one application can access specified functions on the other application on behalf of that user. For example, if you supply the credentials of a JIRA administrator on your JIRA server to a remote application, the remote application will be able to access all functions on your JIRA server that the JIRA administrator can access.

This method of authentication relies on the connection between JIRA and the remote application being secure. We recommend that you use Trusted Apps authentication or OAuth authentication for your application link instead, if possible.

On this page:

- Before You Begin
- Configuring Basic HTTP Authentication for Outgoing Authentication
- Configuring Basic HTTP Authentication for Incoming Authentication
- Notes

Before You Begin

- The instructions assume that **both of the applications that you are linking have the Application Links plugin installed**. If the remote application that you are linking to supports Basic HTTP authentication, but does not have the Application Links plugin installed, you will need to configure Basic HTTP authentication from within the remote application (see the relevant administrator's documentation for the application). This is in addition to configuring the outgoing/incoming authentication for the application link (as described below).

- You must be a JIRA system administrator to configure Basic HTTP authentication for an application link.

Configuring Basic HTTP Authentication for Outgoing Authentication

Configuring **outgoing basic http authentication** will allow JIRA to trust a remote application (i.e. allow the remote application to access specified functions in JIRA).

To configure basic HTTP authentication for an outgoing application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your

application.
2. Click the '**Configure**' link next to the application link that you want to configure trusted apps authentication for.
3. Click the '**Outgoing Authentication**' tab. The outgoing authentication page will be displayed.
4. Click the '**Basic Access**' tab.
5. Click the '**Configure**' button and enter the credentials that the remote application will use to log into your application, i.e. '**Username**' and '**Password**'.
6. Click the '**Apply**' button to save your changes.

Configuring Basic HTTP Authentication for Incoming Authentication

Configuring **incoming basic http authentication** will allow the remote application that you are linking to, to trust JIRA (i.e. allow JIRA to access specified functions on the remote application it is linked to).

To configure basic HTTP authentication for an incoming application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Configure**' link next to the application link that you want to configure trusted apps authentication for.
3. Click the '**Incoming Authentication**' tab. The incoming authentication page will be displayed.
4. Click the '**Basic Access**' tab.
5. Click the '**Configure**' button and enter the credentials that the your application will use to log into the remote application, i.e. '**Username**' and '**Password**'.
6. Click the '**Apply**' button to save your changes.

Notes

Related Topics

Configuring OAuth Authentication for an Application Link
Configuring Trusted Apps Authentication for an Application Link

Configuring OAuth Authentication for an Application Link

The instructions on this page describe how to configure **OAuth** for outgoing authentication and/or incoming authentication for an application link.

OAuth is a protocol that allows a web application to share data/resources with any other OAuth-compliant external application. These external applications could be another web application (such as a Confluence installation or an iGoogle home page), a desktop application or a mobile device application, provided that they are accessible from within your network or available on the Internet.

For example, you could set up an application link between JIRA and an iGoogle page using OAuth authentication. This would allow you to view data from your JIRA server in a JIRA gadget on the iGoogle page.

If you were setting up an application link between two applications which trust each other, do not share the same set of users, but both applications have the UAL plugin installed, you would typically configure OAuth for both outgoing authentication and incoming authentication. See Configuring Authentication for an Application Link for other configurations.

Key OAuth Terminology

- **Service provider** — An application that shares ('provides') its resources.
- **Consumer** — An application that accesses ('consumes') a service provider's resources.
- **User** — An individual who has an account with the Service Provider.

For more information about OAuth, see Configuring OAuth as well as the OAuth specification.

On this page:

- Before You Begin
- Configuring OAuth for Outgoing Authentication
- Configuring OAuth for Incoming Authentication
- Notes

Before You Begin

- Adding an OAuth consumer requires the transmission of sensitive data. To prevent 'man-in-the-middle' attacks, it is recommended that you **use SSL** for your applications while configuring OAuth authentication.
- Do not link to an application using OAuth authentication, unless you **trust all code in the application** to behave itself at all times. OAuth consumers are a potential security risk to the applications that they are linked to.

- The instructions assume that **both of the applications that you are linking have the Application Links plugin installed**. If the remote application that you are linking to supports OAuth, but does not have the Application Links plugin installed, you will need to configure OAuth from within the remote application (see the relevant administrator's documentation for that application) in addition to configuring the outgoing/incoming authentication for the application link (as described below).

- You must be a JIRA system administrator to configure OAuth authentication for an application link.

Configuring OAuth for Outgoing Authentication

Configuring **outgoing OAuth authentication** will allow JIRA to access specific functions and data on a remote application, on behalf of any registered user of that remote application.

To configure OAuth authentication for an outgoing application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Configure**' link next to the application link that you want to configure trusted apps authentication for.
3. Click the '**Outgoing Authentication**' tab. The outgoing authentication page will be displayed.
4. Click the '**OAuth**' tab.
5. If you are not currently logged into the remote application (or you logged into the remote application under a variant of the application's hostname, e.g. the IP address), a login dialogue will display.
    - Enter the '**Username**' and '**Password**' for the remote server, not your local server, and click the '**Login**' button. The remote server needs to learn the identity of your local server for the OAuth protocol to work and your admin credentials are used to store your local server's public key on the remote server. If you are already logged into your remote server, then the appropriate changes can be made without having to log in again.
6. Click the '**Enable**' button to enable OAuth authentication for the outgoing link. Your application will be automatically set up to be the 'consumer' and the remote application as a 'service provider'.

Configuring OAuth for Incoming Authentication

Configuring **incoming OAuth authentication** will allow the remote application that you are linking to, to access specific functions and data in JIRA on behalf of any JIRA user.

To configure OAuth authentication for an incoming application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Configure**' link next to the application link that you want to configure trusted apps authentication for.
3. Click the '**Incoming Authentication**' tab. The incoming authentication page will be displayed.
4. Click the '**OAuth**' tab.
5. Click the '**Enable**' button to enable OAuth authentication for the incoming link. The remote application will be automatically set up to be the 'consumer' and your local application as a 'service provider'.

Notes

Related Topics

Configuring Basic HTTP Authentication for an Application Link
Configuring Trusted Apps Authentication for an Application Link

Configuring Trusted Apps Authentication for an Application Link

The instructions on this page describe how to configure **Trusted Apps** for outgoing authentication and/or incoming authentication for an application link.

Trusted Apps authentication allows one Atlassian application access to specified functions and data on another Atlassian application on behalf of any user. The user only needs to log in to one application, without needing to log in to the other. For this authentication to succeed, however, the user must have an account on both applications with the same user name.

For example, if Trusted Apps authentication were configured between a JIRA server and a Confluence server *and* every user had the same user name on both servers, any of these users (logged in only to Confluence) will see exactly the same list of issues in a Confluence 'JIRA Issues' macro as they would on the JIRA Issue Navigator, when logged in to JIRA independently. This includes issues restricted from public view, which these users have permission to view.

If you were setting up an application link between two applications which trust each other, have the same set of users *and* user names and both have the application links plugin installed, you would typically configure Trusted Apps for both outgoing authentication and incoming authentication. See Configuring Authentication for an Application Link for other configurations.

On this page:

- Before You Begin
- Configuring Trusted Apps for Outgoing Authentication
- Configuring Trusted Apps for Incoming Authentication
- Notes

Before You Begin

- Trusted applications are a **potential security risk**. When you configure trusted apps authentication, you are allowing one application to access another as any user. This allows all of the built-in security measures to be bypassed. Do not configure a trusted application unless you know that all code in the application you are trusting will behave itself at all times, and are sure that the application will maintain the security of its private key.

- The instructions below assume that **both of the applications you are linking have the Application Links plugin installed**. If the remote application that you are linking to supports Trusted Apps, but does not have the Application Links plugin installed, you will need to configure Trusted Apps from within the remote application (see the relevant administrator's documentation for the application) in addition to configuring the outgoing/incoming authentication for the application link (as described below).

- You must be a JIRA system administrator to configure Trusted Apps authentication for an application link.

Configuring Trusted Apps for Outgoing Authentication

Configuring **outgoing Trusted Apps authentication** will allow JIRA to access functions and data on a remote application, on behalf of a user whose user names are the same on both applications.

To configure Trusted Apps authentication for an outgoing application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Configure**' link next to the application link that you want to configure Trusted Apps authentication for.
3. Click the '**Outgoing Authentication**' tab. The outgoing authentication page will show, with the '**Trusted Apps**' tab displayed.
4. If you are not currently logged into the remote application (or you logged into the remote application under a variant of the application's hostname, e.g. the IP address), a login dialogue will display.
   - Enter the '**Username**' and '**Password**' for the remote server, (not your local server), and click the '**Login**' button. You need to enter the credentials for the remote server, as the remote server needs to be instructed to trust your local server for the Trusted Apps protocol to work. If you are already logged into your remote server, then the appropriate changes can be made without having to log in again.
5. Configure the settings for the Trusted Apps authentication:
   - '**IP Patterns**' — Enter the IP addresses (IPv4 only) from which the remote application will accept requests (this effectively is the IP address your local server). You can specify wildcard matches by using an asterisk (*), e.g. '`192.111.*.*`' (note, you cannot use netmasks to specify network ranges). If you are entering multiple IP addresses, separate them with commas or spaces.
     Please note, if you are setting up trusted apps between two applications that both have the Application Links plugin installed, you can leave this field blank (or explicitly use `*.*.*.*`). However, if your remote application does not have the Application Links plugin installed and you are configuring the IP Patterns in the remote application (not the Application Links plugin), ***you must not leave this field blank nor use `*.*.*.*`****. Failure to configure IP address restrictions in this scenario is a security vulnerability, allowing an unknown site to log into your site under a user's login ID.*
     Consider the following scenarios, if you want to limit access by using this field:
     - If your local application is using a proxy server, you need to add the proxy server's IP address to this field.
     - If your local application is a clustered instance of Confluence, you need to configure the remote server to accept requests from each cluster node. If you do not set up each node appropriately, your Confluence users may not be able to view any information from the remote server. You can set this up by either specifying each individual IP address for each node of the cluster (e.g. `172.16.0.10, 172.16.0.11, 172.16.0.12`), or specifying the IP address for the clustered Confluence instance using wildcards (e.g. `172.16.0.*`).
   - **'URL Patterns'** — Enter the URLs in the remote application that your local application will be allowed to access. Each URL corresponds to a particular application function. Enter one URL per line, as follows:
     - If your remote application is JIRA, enter the following URL Patterns: `/plugins/servlet/streams`, `/sr/jira.issueviews:searchrequest`, `/secure/RunPortlet`, `/rest`, `/rpc/soap`
     - If your remote application is Confluence, enter the following URL Patterns: `/plugins/servlet/streams`, `/plugins/servlet/applinks/whoami`
   - '**Certificate Timeout (ms)**' — Enter the certificate timeout. The default is 10 seconds. The certificate timeout is used to prevent replay attacks. For example, if a Trusted Apps request is intercepted and (maliciously) re-sent, the application will be able to check when the request was first sent. If the second request is sent more than 10 seconds (or whatever the certificate timeout is set to) after the initial request, it will be rejected. Please note, you should not have to change the default value of this field for most application links. Note that the certificate timeout relies on the clocks on both servers being synchronised.
6. Click the '**Apply**' button to save your changes.

Configuring Trusted Apps for Incoming Authentication

Configuring **incoming Trusted Apps authentication** will allow the remote application that you are linking to, to access functions and data in JIRA, on behalf of a user whose user names are the same on both applications.

To configure Trusted Apps authentication for an incoming application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Configure**' link next to the application link that you want to configure Trusted Apps authentication for.
3. Click the '**Incoming Authentication**' tab. The outgoing authentication page will show, with the '**Trusted Apps**' tab displayed.
4. The tab will show whether Trusted Apps is currently enabled or not. Use the Modify or **Configure** buttons respectively to configure Trusted Apps. The Trusted Apps configuration settings will be displayed:

- '**IP Patterns**' — Enter the IP addresses (IPv4 only) from which our application will accept requests. You can specify wildcard matches by using an asterisk (*), e.g. '`192.111.*.*`' (note, you cannot use netmasks to specify network ranges). If you are entering multiple IP addresses, separate them with commas or spaces.
  *Please note, if you are setting up trusted apps between two applications that both have the Application Links plugin installed, you can leave this field blank (or explicitly use `*.*.*.*`). However, if your remote application does not have the Application Links plugin installed and you are configuring the IP Patterns in the remote application (not the Application Links plugin), **you must not leave this field blank nor use `*.*.*.*`**. Failure to configure IP address restrictions in this scenario is a security vulnerability, allowing an unknown site to log into your site under a user's login ID.*
  Consider the following scenarios, if you want to limit access by using this field:
  - If the remote application is using a proxy server, you need to add the proxy server's IP address to this field.
  - If the remote application is a clustered instance of Confluence, you need to accept requests from each cluster node. If you do not specify each node's address, Confluence users may not be able to view any data from your application. You can set this up by either specifying each individual IP address for each node of the cluster (e.g. 172.16.0.10, 172.16.0.11, 172.16.0.12), or specifying the IP address for your clustered Confluence instance using wildcards (e.g. 172.16.0.*).
- **'URL Patterns'** — Enter the local URLs that the remote application will be allowed to access. Each URL corresponds to a particular application function. Enter one URL per line, as follows:
  - If your local application is JIRA, enter the following URL Patterns — `/plugins/servlet/streams`, `/sr/jira.issueviews:searchrequest`, `/secure/RunPortlet`, `/rest`, `/rpc/soap`
  - If your local application is Confluence, enter the following URL Patterns — `/plugins/servlet/streams`, `/plugins/servlet/applinks/whoami`
- '**Certificate Timeout (ms)**' — Enter the certificate timeout. The default is 10 seconds. The certificate timeout is used to prevent replay attacks. For example, if a Trusted Apps request is intercepted and (maliciously) re-sent, the application will be able to check when the request was first sent. If the second request is sent more than 10 seconds (or whatever the certificate timeout is set to) after the initial request, it will be rejected. Please note, you should not have to change the default value of this field for most application links. Note that the certificate timeout relies on the clocks on both servers being synchronised.

5. Click the '**Apply**' button to save your changes.

Notes

Related Topics

Configuring Basic HTTP Authentication for an Application Link
Configuring OAuth Authentication for an Application Link

Editing an Application Link

You can change the details of an existing application link, such as the application's name and its display URL.

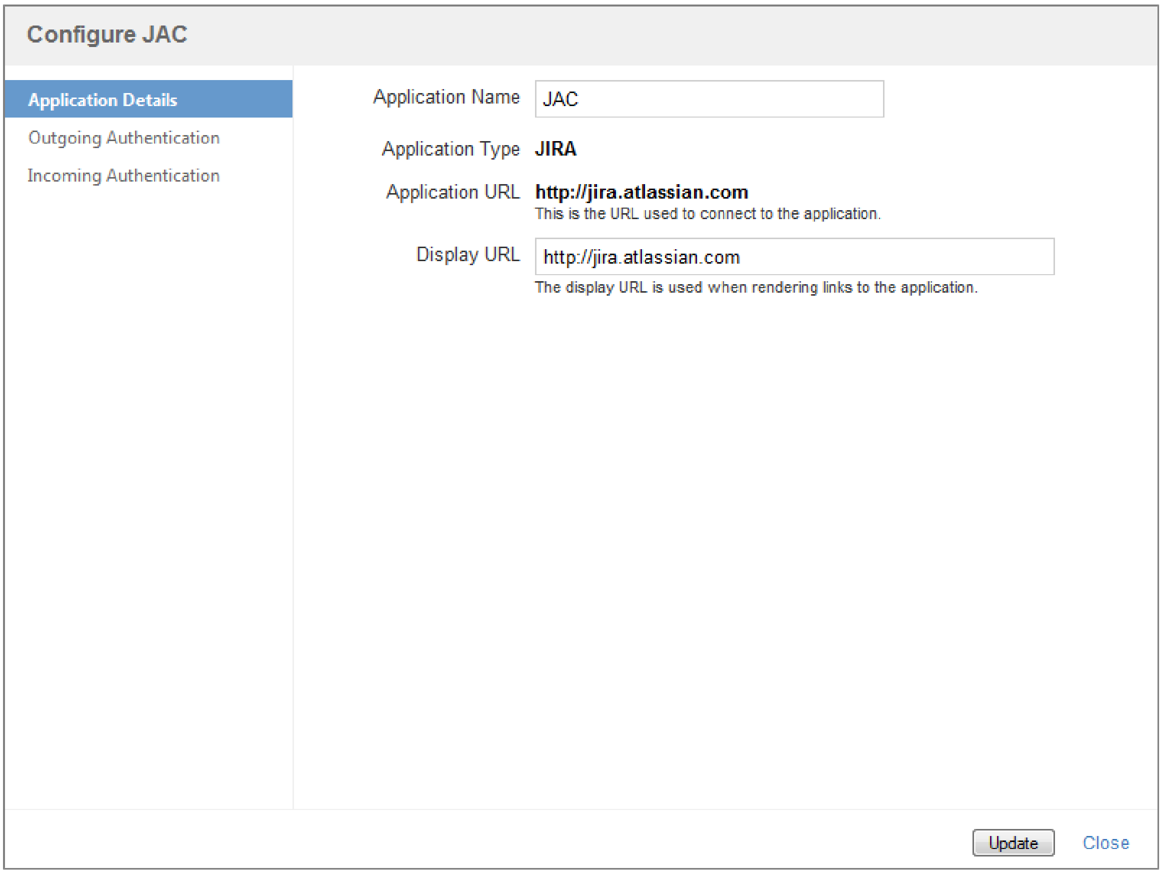
On this page:

- Editing an Application Link
- Notes

Editing an Application Link

To edit an application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Configure**' link next to the application link that you want to edit the details for. The application details for the application link will be displayed.
3. Update the application details as desired. Please note, you cannot update the Application Type nor the Application URL.
   - '**Application Name**' — Update this field to change the display name for the application that you are linking to.
   - '**Display URL**' — This is the URL that is used for features like link rendering. You may have used a URL that is not accessible to other users when you created your application link, e.g. an internal IP address. If so, you can change the display URL to an address in a domain that is accessible to other users. Link rendering will then be available for users.
4. Click the '**Update**' button to save your changes.



Screenshot above: Editing an application link

Notes

Related Topics

Configuring Authentication for an Application Link
Making an Application Link the Primary Link
Relocating an Application Link

Making an Application Link the Primary Link

If you have set up application links from JIRA to more than one of the same type of application servers, e.g. you have linked JIRA to two FishEye servers, then one of these servers will be marked as the 'Primary' link. This means that any outgoing requests will be directed to the primary link's server.

For example, if you have set up a JIRA server that is linked to two FishEye servers with two-way authentication for both links, you can nominate an application link to one of the FishEye servers as the primary link. Every time JIRA requests FishEye information (e.g. for a FishEye repository changeset), JIRA will request this information from the primary link's FishEye server. Note, both FishEye servers can still make requests of the JIRA server.

Please read, Making an Entity Link the Primary Link, for information on how primary entity links also influence the information shared between servers.

On this page:

- Making an Application Link the Primary Link
- Notes

Making an Application Link the Primary Link

To make an application link the primary link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Make Primary**' link next to the application link that you want to make the primary link. A '' symbol will display in the 'Primary' column next to the application link.
   The 'Primary' column and 'Make Primary' link will only display if you have set up application links to more than one of the same application type, e.g. you have linked your application to two JIRA servers.

Notes

Related Topics

Making an Entity Link the Primary Link

Relocating an Application Link

The instructions on this page describe how to relocate an application link. You will need to relocate an application link if the target application of the link has been moved to a new address.

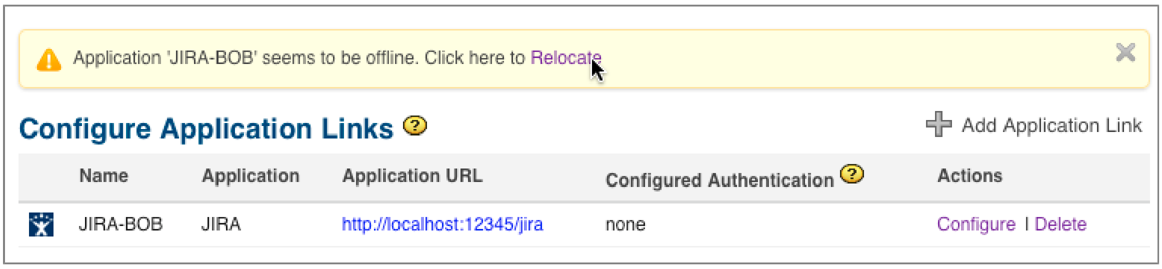
On this page:

- Relocating an Application Link
- Notes

Relocating an Application Link

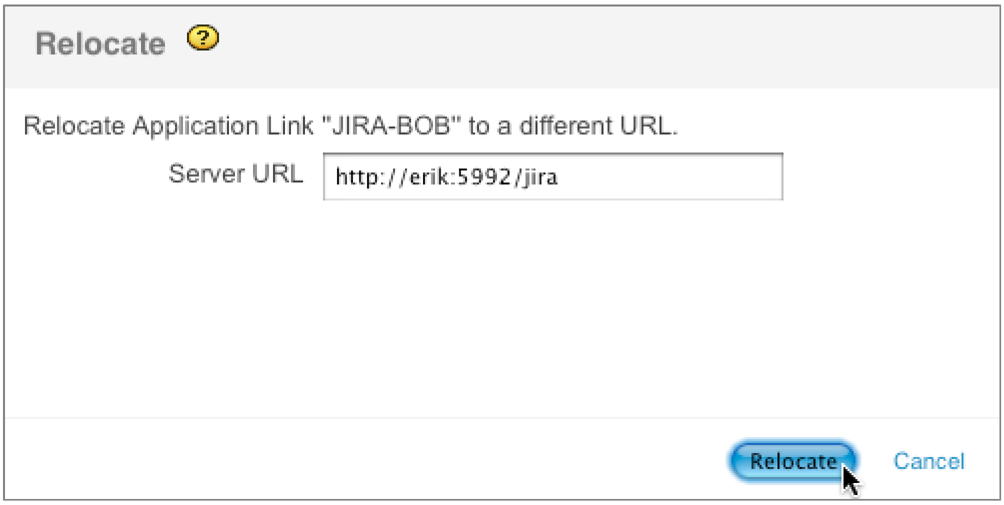
To relocate an application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. If the remote application for an application link cannot be reached by your application, the '**List Application Links**' page will display a warning message (see 'Relocate Link - Warning Message' screenshot below).
3. If your remote application has been moved to a different address (rather than just being offline temporarily), click the '**Relocate**' link in the warning message (see 'Relocate Link - Updating URL' screenshot below).
4. Enter the new URL for the remote application of your application link and click '**Relocate**'.
5. You will need to confirm the relocation, if the new URL cannot be contacted. Otherwise, the application link will be updated.



Screenshot above: Relocate Link - Warning Message

Type the new URL for the application link and hit Relocate.



Screenshot above: Relocate Link - Updating URL

Notes

Related Topics

- Making an Application Link the Primary Link

Upgrading an Application Link

The instructions on this page describe how to upgrade an existing application link. You may want to upgrade an application link in either of the following situations:

- **Your JIRA installation has been upgraded from a version which does not support/include UAL to a version that does.**
  For example, you may have configured Trusted Apps or OAuth relationships in a JIRA 4.2 installation (which did not include UAL) and upgraded it to JIRA 4.3 or later (which includes UAL).

- **Your remote application (to which JIRA has existing application links), has been upgraded from a version which does not support/include UAL to a version that does.**
  For example, you had set up an application link in a JIRA 4.3 installation or later (which includes UAL) to Confluence 3.4 installation (which did not include UAL) and that Confluence installation was upgraded to Confluence 3.5 or later (which includes UAL).

On this page:

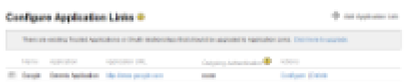
- Upgrading an Application Link (Local App Upgraded to Include UAL)
- Upgrading an Application Link (Remote App Upgraded to Include UAL)
- Notes

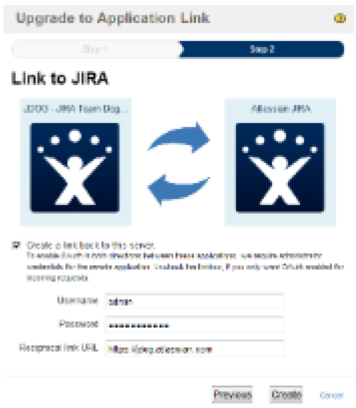
Upgrading an Application Link (Local App Upgraded to Include UAL)

When you upgrade a JIRA version that does not include UAL to version that does, you will have the option of converting any Trusted Apps or OAuth links to UAL links. Converting these links to UAL ones greatly simplifies the link configuration process.

To upgrade an application link when your local application has been upgraded to include UAL:

1. After your application upgrade, navigate to the administration console.
2. Click '**Application Links**'. The 'Configure Application Links' screen will be displayed with the following message:
   "There are existing Trusted Applications or OAuth relationships that should be upgraded to Application Links. ***Click here to upgrade.****"*
3. Click the '**Click here to upgrade**' link. The 'Existing Trust Relationships' screen will be displayed showing all Trusted Apps and OAuth relationships that can be upgraded to UAL links.
4. Click the '**Upgrade to Application Link**' link next to the desired trust relationship. The 'Upgrade to Application Link' wizard will be displayed.
5. Complete the wizard. The process will be similar to adding a new link (described on Adding an Application Link), except that most fields should be pre-filled.





Step 1
Step 2
Step 3
Step 4

Screenshots above: Upgrading an application link for local application

Upgrading an Application Link (Remote App Upgraded to Include UAL)

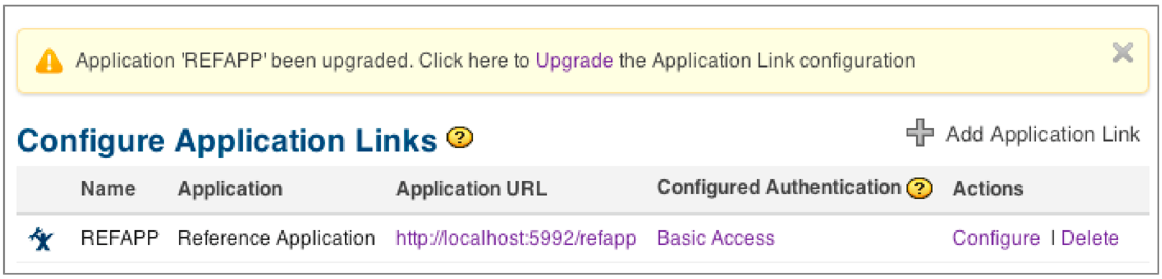
When an application link is created between a UAL-enabled version of JIRA and a remote legacy application (either a non-Atlassian product, or an older version of an Atlassian product that did not ship with UAL), this link is configured to run in "legacy mode". While there is no distinguishable difference to a user, connecting and configuring non-UAL application links is a little different. For example:

- Setting up OAuth requires manual configuration by the administrator. In OAuth authentication for UAL-to-UAL links, exchange of the consumer keys and public keys is done automatically.
- The Trusted Applications protocol (Atlassian-specific) will not be available for authentication.

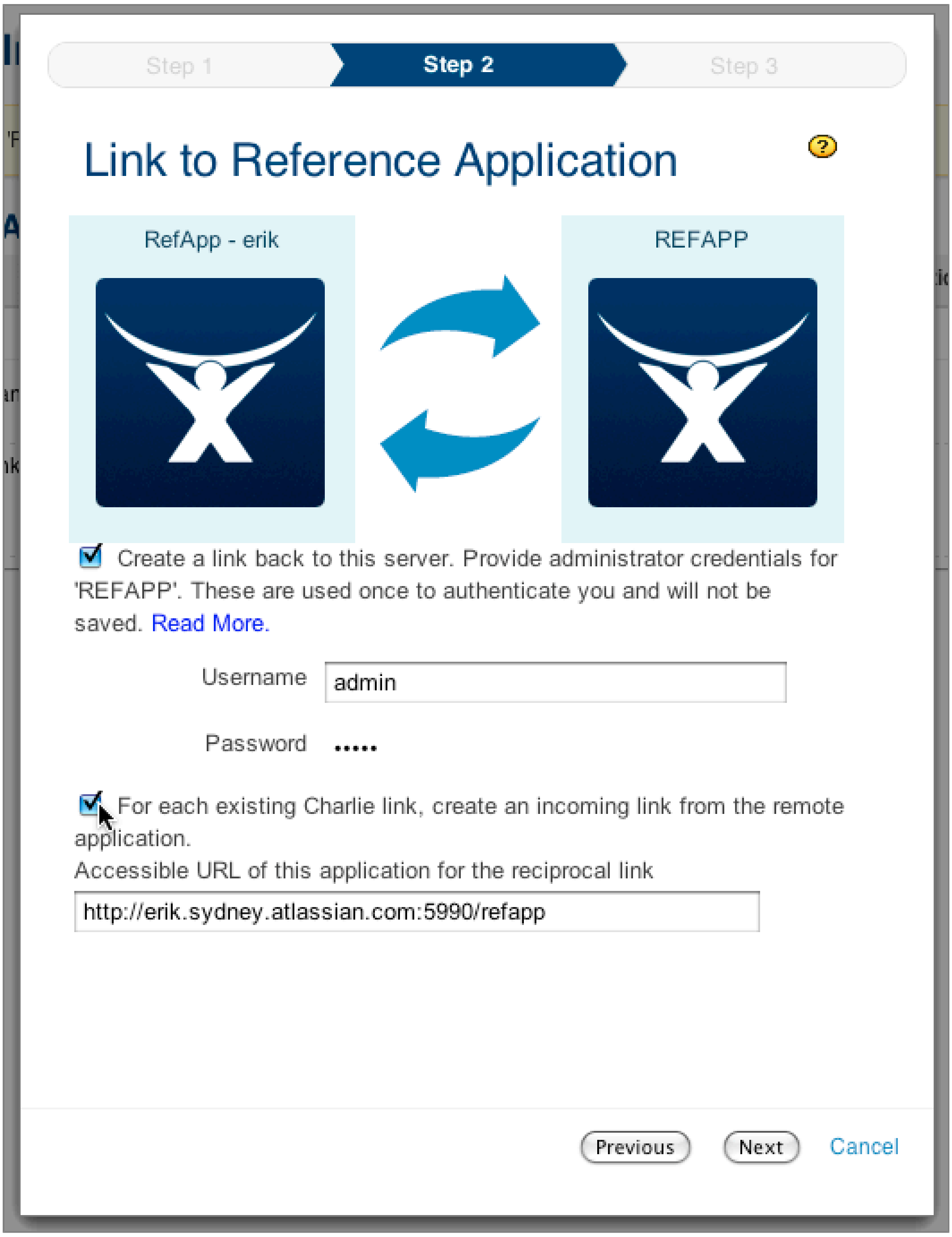
If you upgrade your remote application to a version that does include UAL, the application link will continue to work. However, upgrading your link may simplify link configuration and make additional authentication protocols available (as mentioned above).

To upgrade an application link when your remote application has been upgraded to include UAL:

1. After you have upgraded your remote application to a version that includes UAL, navigate to the administration console of your local application. A warning will be displayed, requesting that you upgrade the link to full-UAL mode (see 'Upgrading an application link - Warning message' screenshot below).
2. Click '**Upgrade**' in the warning message to start the upgrade wizard.
3. Complete the upgrade wizard to upgrade your link to full-UAL mode (see 'Upgrading an application link wizard' screenshot below). The wizard will be similar to the one used when you first added the link. Note the following:
    - You will be prompted to make your application link into a reciprocal link. You will need to provide administrator credentials for your remote application, if you choose to do so.
    - If you make your application link into a reciprocal link, you will also be able to make any entity links (for the application link) into reciprocal links. For example, you may be able to link your JIRA project to a FishEye repository and also make a link from your FishEye repository back to the JIRA project.



Screenshot above: Upgrading an application link for remote application



Screenshot above: Upgrading an application link wizard

Notes

Related Topics

Adding an Application Link
Configuring Authentication for an Application Link

Deleting an Application Link

Deleting an application link stops two linked applications from sharing information. Once an application link is deleted, you will no longer be able to make requests from one application to the other and vice versa. This means that certain features may not work, for e.g. Inserting JIRA issues in Confluence, Confluence Page Gadget in JIRA, etc.

If you have set up application links to multiple servers of the same application type, e.g. you have linked your application to multiple JIRA servers, deleting the primary link will mean that another of the links will be made the primary link.

Deleting an application link will also delete all entity links set up for that application link.

On this page:

- Deleting an Application Link
- Notes

Deleting an Application Link

To delete an application link:

1. Log in as an administrator and navigate to the administration page. Click '**Application Links**' in the administration menu. The 'Configure Application Links' page will be displayed, listing all of the application links that have currently been set up for your application.
2. Click the '**Delete**' link next to the application link that you want to delete. A confirmation screen will be displayed.
3. Click the '**Confirm**' button to delete the application link.

Notes

Related Topics

Editing an Application Link
Relocating an Application Link

Configuring Link Rendering

Link rendering is a feature of the application links plugin that lets you create simple text shortcuts between 'entities' of Atlassian applications, such as `[JRA-1234]` for a issue in a JIRA project or `[Test Page]` for a page in a Confluence space, where 'projects' and 'spaces' are different types of Atlassian application entities.

Follow the instructions below to enable link rendering.

On this page:

- Enabling Link Rendering
- Notes

Enabling Link Rendering

Before you begin:

- If you want to enable link rendering for JIRA, the wiki renderer in JIRA must be enabled. See Configuring Renderers for details.

To enable link rendering:

1. Add a new application link for the two applications you are linking between, if you haven't already done so.
2. Configure trusted apps or OAuth for both the incoming and outgoing authentication for your application link.
3. Add two-way entity links for each of the entities that you want to link between. For example, if you set up an entity link between a JIRA project and a Confluence space, you will be able to use simple textual references to refer to issues in the JIRA project from the Confluence space (e.g. `[JRA-1234]`). You will also be able to use simple textual references to refer to pages in the Confluence space from the JIRA project, (e.g. `[Test Page]`).

Notes

Related Topics

Adding an Application Link
Configuring Trusted Apps Authentication for an Application Link
Configuring OAuth Authentication for an Application Link
Linking your JIRA Project to another Entity
Configuring Renderers

Configuring Entity Links for an Application Link

If you have added an application link between JIRA and another application, you can also link entities of the two applications. An entity is one of the following:

- Confluence space
- JIRA project
- FishEye repository
- FishEye project (this is the Crucible project if it is a FishEye/Crucible instance, otherwise it is the paths associated via the 'FishEye Project Content' function in FishEye)
- Crucible project
- Bamboo project

For example, you could associate a JIRA project with a Confluence space. This allows you to take advantage of additional integration features like link rendering, which lets you link to issues in a project or pages in a space using simple textual reference, such as `[JRA-1234]`, `[SPACEKEY:Test Page]`.

The following topics describe how to create and manage entity links:

- Linking your JIRA Project to another Entity
- Making an Entity Link the Primary Link
- Deleting an Entity Link

Linking your JIRA Project to another Entity

If you have linked two applications, you can also link between entities of the two applications. An entity is one of the following:

- Confluence space
- JIRA project
- FishEye repository
- FishEye project *(this is the Crucible project if it is a FishEye/Crucible instance, otherwise it is the paths associated via the 'FishEye Project Content' function in FishEye)*
- Crucible project
- Bamboo project

On this page:

- Adding an Entity Link
- Notes

Adding an Entity Link

Before you begin:

- You must have permission to administer the JIRA project that you want to link from.

To add an entity link from a JIRA project to an entity in another application:

1. Log in to JIRA as a JIRA administrator or project administrator and navigate to the administration page for the project. See Defining a Project for details.
2. On the the 'Projects' page, choose the JIRA project that you want to link to another entity.
3. On the project's configuration page, locate the 'Application Links' section and click '**Configure Application Links**'.
4. The instructions for adding an entity will vary depending on whether the target application has UAL:
    - If the target application for the entity has UAL:
        a. Click '**Add Link**'. A dropdown menu will display listing all of the applications you have already linked to.
        b. In the dropdown menu, click the application that contains the entity that you want to link to. For example, if you want to link to a specific JIRA project, click the JIRA server that contains the JIRA project.
        c. Click either of the options on the 'Authorization required' screen:
            - '**Authorize**' — Click this option if you want to allow authorised access to the target entity, by your entity. The target application will open in a new window, so that you can log in and authorise access.
            - '**Skip – your access is anonymous**' — Click this option if you only want to allow anonymous access to the target entity, by your entity.
        d. In the '**Name or Key**' field, enter the name/key for the entity in the remote application that you want to link to. For example, if you want to link to a JIRA project, enter the project key.
        e. Click the '**Create**' button to create the entity link.
    - If the target application for the entity does not have UAL:
        a. Click '**Add Link**'. A dropdown menu will display listing all of the applications you have already linked to.
        b. In the dropdown menu, click the application that contains the entity that you want to link to. For example, if you want to link to a specific JIRA project, click the JIRA server that contains the JIRA project.
        c. Enter the name/key for the entity in the remote application that you want to link to, in the '**Key**' field. For example, if you want to link to a JIRA project, enter the project key.
        d. *(optional)* Enter the alias for the entity in the '**Alias**' field. This is the display name for the entity in your administration console.
        e. Click the '**Create**' button to create the entity link.

Step 1
Step 2
Step 3

Screenshots above: Linking to a another JIRA project (where the target JIRA server includes UAL)

Notes

Related Topics

Making an Entity Link the Primary Link
Deleting an Entity Link

Making an Entity Link the Primary Link

If you have set up entity links to more than one of the same type of entity, e.g. you have linked your JIRA project to two Confluence spaces, then one of the entities will be marked as the 'Primary' link. This means that any outgoing requests will be directed to the primary link's entity.

For example, if you have a JIRA project that is linked to two Confluence spaces, you can nominate an entity link to one of the Confluence spaces as the primary link. Every time JIRA requests Confluence information, it will request it from the primary link's Confluence space. Note, both Confluence space can still request information from the JIRA project.

On this page:

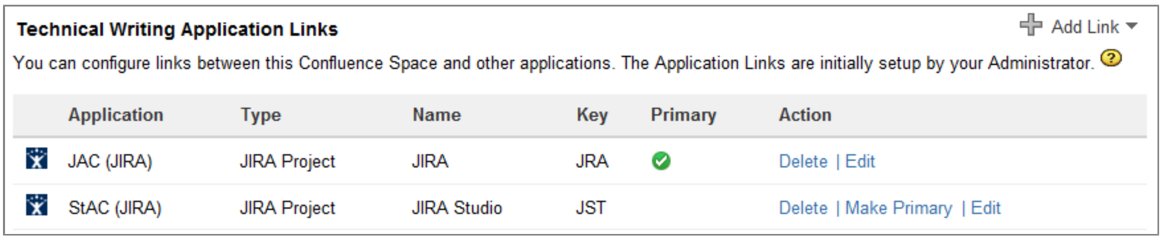
- Making an Entity Link the Primary Link
- Notes

Making an Entity Link the Primary Link

To make an entity link the primary link:

1. Log in to JIRA as a JIRA administrator or project administrator and navigate to the administration page for the project. See Defining a Project for details.
2. On the the 'Projects' page, choose the JIRA project that you want to link to another entity.
3. On the project's configuration page, locate the 'Application Links' section and click '**Configure Application Links**'.

4. Click the '**Make Primary**' link in the '**Action**' column for the entity link that you want to make the primary link. A symbol will display in the 'Primary' column next to the entity link.
   The 'Primary' column and 'Make Primary' link will only display if you have set up entity links to more than one of the same type of entity, e.g. you have linked your entity to two JIRA projects.


Technical Writing Application Links Add Link
You can configure links between this Confluence Space and other applications. The Application Links are initially setup by your Administrator.

Application	Type	Name	Key	Primary	Action
JAC (JIRA)	JIRA Project	JIRA	JRA	✔	Delete | Edit
StAC (JIRA)	JIRA Project	JIRA Studio	JST		Delete | Make Primary | Edit

Screenshot above: Viewing entity links for a JIRA project

Notes

Related Topics

Linking your JIRA Project to another Entity
Deleting an Entity Link

Deleting an Entity Link

Deleting an entity link stops the two entities from sharing information. If there are no entity links for an application link, certain integration features may not work, such as link rendering, JIRA issues macro in Confluence, Confluence Page Gadget in JIRA, etc.

If you have set up entity links to multiple entities of the same type, e.g. you have linked your JIRA project to multiple Confluence spaces, deleting the primary link will mean that another of the links will be made the primary link.

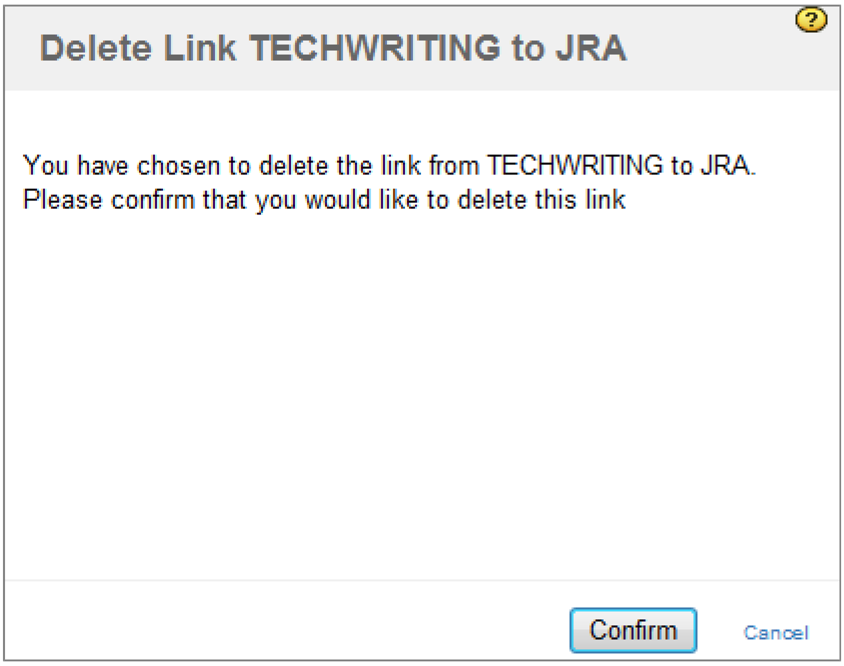
On this page:

- Deleting an Application Link
- Notes

Deleting an Application Link

To delete an application link:

1. Log in to JIRA as a JIRA administrator or project administrator and navigate to the administration page for the project. See Defining a Project for details.
2. On the the 'Projects' page, choose the JIRA project that you want to link to another entity.
3. On the project's configuration page, locate the 'Application Links' section and click '**Configure Application Links**'.
4. Click the '**Delete**' link next to the entity link that you want to delete. A confirmation screen will be displayed.
5. Click the '**Confirm**' button to delete the entity link.



Screenshot above: Confirming the deletion of an entity link

Notes

Related Topics

Linking your JIRA Project to another Entity
Making an Entity Link the Primary Link

Server Administration

- Increasing JIRA Memory
- Using the Database Integrity Checker
- Precompiling JSP pages
- Database Indexing
- Logging and Profiling
- Restoring Data
- Optimising Performance
- Backing Up Data
- Search Indexing
- Using robots.txt to hide from Search Engines
- Updating your JIRA License Details
- Viewing your System Information
- Generating a Thread Dump
- Performance Testing Scripts
- Finding the JIRA Support Entitlement Number (SEN)

Increasing JIRA Memory

Java applications like JIRA and Confluence run in a "Java virtual machine" (JVM), instead of directly within an operating system. When started, the Java virtual machine is allocated a certain amount of memory, which it makes available to applications like JIRA. By default, Java virtual machines are allocated 64Mb of memory, no matter how many gigabytes of memory your server may actually have available. 64Mb is inadequate for medium to large JIRA installations, and so this needs to be increased. Seeing OutOfMemoryErrors in the logs is symptomatic of this.

> This page addresses how to increase Heap Space memory. Confirm that you're not receiving Perm Gen or GC Overhead errors.

On this page:

- Step 1: Diagnosis
  - Assess Root Cause
  - Determine JIRA usage patterns
  - Determine available system memory
  - Guidance
- Step 2: Increase Available Memory
  - Linux
  - Windows (starting from .bat file)
  - Windows Service
  - Setting Properties for Windows Services via Command Line
  - Setting Properties for Windows Services via the Windows Registry
- Step 3: Verify Your Settings

Step 1: Diagnosis

Expand to see diagnosis section

Assess Root Cause

Often, there is a root cause for OutOfMemory Errors that may be better to address than just increasing memory. See JIRA Crashes Due to 'OutOfMemoryError Java heap space' for a discussion.

Determine JIRA usage patterns

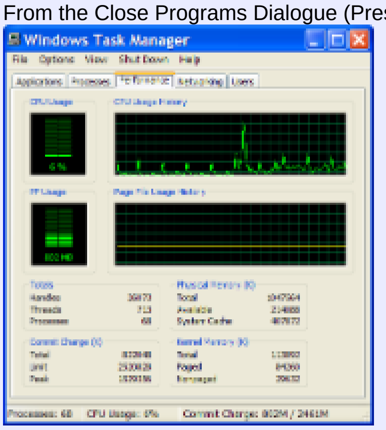
In JIRA, go to `Administration » System » System Info`, and look at the memory graph during times of peak usage:

This server has been allocated a maximum of 650Mb and a minimum of 256m. You can see the minimum displayed here; if you're trying to see whether your settings are being picked up, this is where to look. Of this, JIRA has reserved 543Mb, or which 310Mb is actually in use (this JIRA instance has about 6000 issues). If this JIRA instance were running out of memory, it would have reserved the maximum available (650Mb), and would be using an amount close to this.

Determine available system memory

On Windows

From the Close Programs Dialogue (Press ctrl-alt-delete), select the Performance tab:



The amount marked **Available** is the amount in kilobytes you have free to allocate to JIRA. On this server we should allocate at most 214Mb.

On Linux
Run `cat /proc/meminfo` to view the memory usage.

Setting the -Xmx above the available amount on the server runs the risk of OutOfMemoryErrors due to lack of physical memory. If that occurs the system will use swap space, which greatly decreases performance.

Guidance

As a rule of thumb, if you have fewer than 5000 issues, JIRA should run well with the default 256MB. Granting JIRA too much memory can impact performance negatively, so it's best to start with 256Mb and make modest increases as necessary. As another data point, 40,000 works well with 750MB.

Step 2: Increase Available Memory

Linux

Expand to see Linux instructions

To increase heap space memory in Linux installations,
1. From `<jira-install>/bin` (Stand-alone) or `<Tomcat-home>/bin` (EAR-WAR installation), open **setenv.sh**. 2. Find the sections **JVM_MINIMUM_MEMORY=** and **JVM_MAXIMUM_MEMORY=** 3. See Diagnosis above and enter the appropriate values.

Windows (starting from .bat file)

Expand to see Windows .bat file instructions

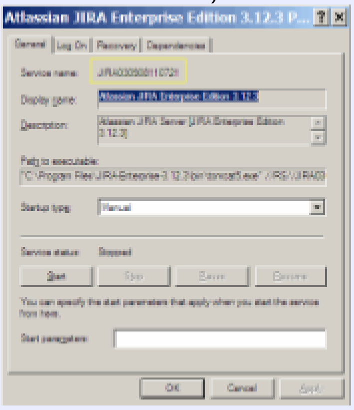
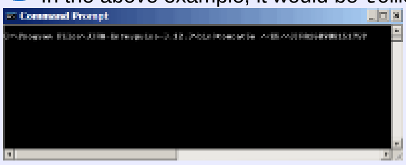
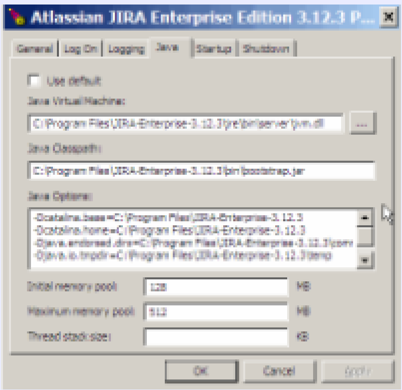
To Configure System Properties in Windows Installations When Starting from the .bat File,
1. From `<jira-install>/bin` (Stand-alone) or `<Tomcat-home>/bin` (EAR-WAR installation), open **setenv.bat**. 2. Find the section **set JVM_MINIMUM_MEMORY=** and **set JVM_MAXIMUM_MEMORY=** 3. See Diagnosis above and enter the appropriate values.

Windows Service

Expand to see Windows Service instructions

There are two ways to configure system properties when starting Running JIRA Standalone as a Service, either via command line or in the Windows Registry

Setting Properties for Windows Services via Command Line

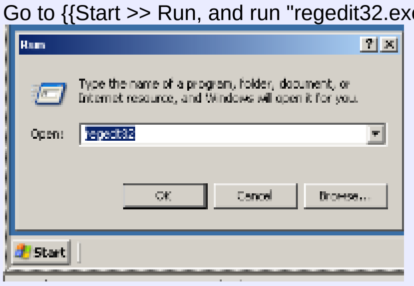
Setting Properties for Windows Services via Command Line
1. Identify the name of the service that JIRA is installed as in Windows (`Control Panel > Administrative Tools > Services`):  In the above example, the **SERVICENAME** is: `JIRA030908110721` 2. Open the command window from `Start >> Run >> type in 'cmd' >> Enter` 3. `cd` to the `bin` directory of your JIRA Standalone instance, or the `bin` directory of your Tomcat installation if your are running JIRA EAR/WAR. 4. Run: `tomcat6w //ES//%SERVICENAME%` . In the above example, it would be `tomcat6w //ES//JIRA030908110721`  5. Click on the `Java` tab to see the list of current start-up options:  6. Set the maximum memory allocation here

Setting Properties for Windows Services via the Windows Registry

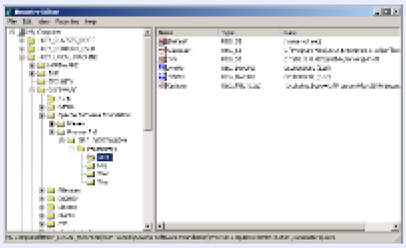
In some versions of Windows, there is no option to add Java variables to the service. In these cases, you must add the properties by viewing the option list in the registry.

To Set Properties for Windows Services via the Windows Registry,

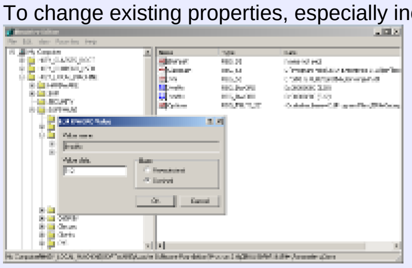
1. Go to {{Start >> Run, and run "regedit32.exe".



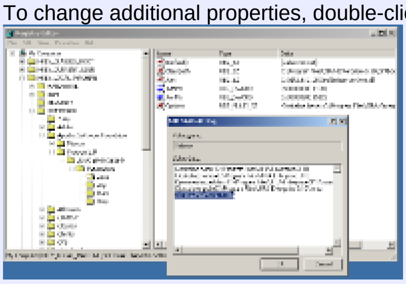
2. Find the Services entry:
32-bit: `HKEY_LOCAL_MACHINE >> SOFTWARE >> Apache Software Foundation >> Procrun 2.0 >> JIRA`
64-bit: `HKEY_LOCAL_MACHINE >> SOFTWARE >> Wow6432Node >> Apache Software Foundation >> Procrun 2.0 >> JIRA`



3. To change existing properties, especially increasing Xmx memory, double-click the appropriate value.



4. To change additional properties, double-click options.



5. Modify the memory allocations here.

Step 3: Verify Your Settings

Expand to see verification instructions

To verify what settings are in place, check the `<jira-home>/logs/atlassian-jira.log` or `catalina.out` file. A section in the startup appears like this:

```
JVM Input Arguments : -Djava.util.logging.config.file=/usr/local/jira/conf/logging.properties
-XX:MaxPermSize=256m -Xms256m -Xmx384m -Djava.awt.headless=true -Datlassian.standalone=JIRA
-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true -Dmail.mime.decodeparameters=true
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
-Djava.endorsed.dirs=/usr/local/jira/endorsed -Dcatalina.base=/usr/local/jira
-Dcatalina.home=/usr/local/jira -Djava.io.tmpdir=/usr/local/jira/temp
```

Look for Xmx (maximum) and Xms (minimum) settings.

This display is also available by Viewing your System Information.

Using the Database Integrity Checker

Searching for common data inconsistencies, the **Database Integrity Checker** attempts to ensure that all JIRA data is in a consistent state.

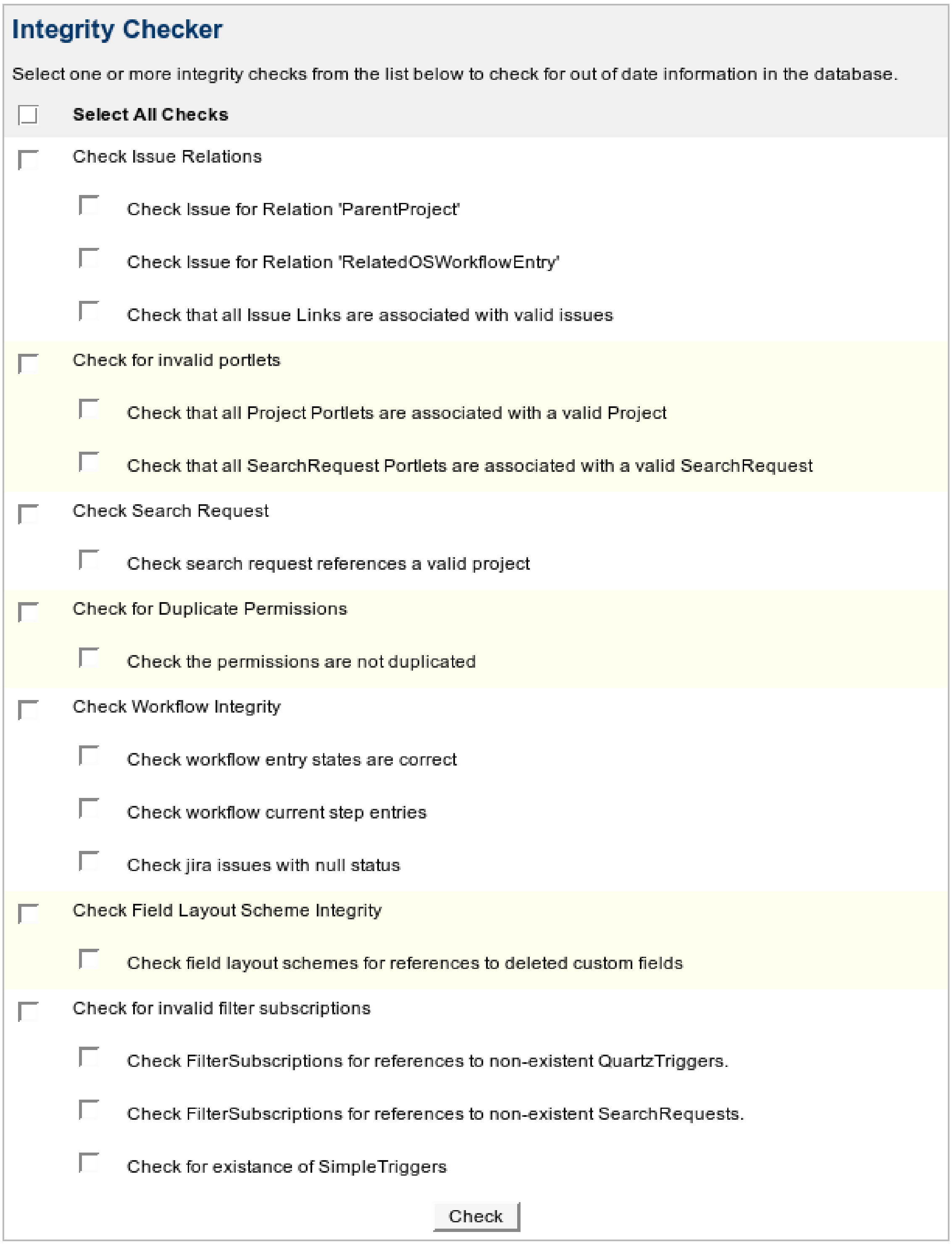
This is useful in a number of situations, e.g.

- Before migrating a project to a new workflow
- An external program is modifying JIRA's database
- Troubleshooting a server crash

If an error is encountered, most of the integrity checks provide a 'repair' option which attempts to reset the data to a stable state.

Using the Integrity Checker

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu in the left-hand navigation solumne, click the **'Integrity Checker'** link.
4. The **'Integrity Checker'** screen will be displayed:



5. The integrity checker has a number of 'integrity checks' that look for common inconsistencies in the data. Select one or more checks

you would like to run, then click the **'Check'** button.
6. After the selected checks run, the preview screen will be shown.
The screen provides details about the existing data inconsistencies. If any inconsistencies were found, the **'Fix'** button will also appear on the page. The messages in red describe inconsistencies that the check will correct if it is chosen and the **'Fix'** button is clicked. Messages that appear in yellow are warnings that the check will not correct; JIRA will auto-recover from these inconsistencies when an action is taken on an issue.
Select any inconsistencies that you would like to correct, then click the **'Fix'** button.

> We **strongly** recommend taking a backup of your data before correcting any data inconsistencies.

7. If any inconsistencies were found and you chose to correct them, you will be presented with a summary screen describing all the corrective actions that have taken place.

Precompiling JSP pages

If you decided to go the extra mile and extend JIRA's build process to precompile JSP pages, keep in mind that the "include" directory in the JIRA web application needs to be excluded from precompilation. The reason for this is that the JSP files in the "include" directory are not proper JSP files, but are includes that are only meant to be compiled as part of larger JSP pages.

For example, to exclude the JSP pages in the "include" directory when using Maven use the <exclude> sub-element of the <ant:jspc> task, as shown:

```
<ant:path id="jspc.classpath">
      <ant:pathelement location="${tomcat.home}/common/lib/jasper-runtime.jar"/>
      <ant:pathelement location="${tomcat.home}/common/lib/jasper-compiler.jar"/>
      <ant:pathelement location="${tomcat.home}/common/lib/servlet.jar"/>
      <ant:path refid="maven-classpath"/>
      <ant:path refid="maven.dependency.classpath"/>
      <ant:pathelement path="${maven.build.dest}"/>
      <ant:pathelement path="${java.home}/lib/tools.jar"/>
    </ant:path>
    <ant:jspc
      package="${pom.package}.jsp"
      destDir="${jspOutDir}"
      srcdir="${warSource}"
      uriroot="${warSource}"
      uribase="/${pom.artifactId}"
      verbose="2"
      classpathref="jspc.classpath">
      <ant:include name="**/*.jsp"/>
      <ant:exclude name="**/includes/**/*.jsp"/>
    </ant:jspc>
```

Database Indexing

JIRA 3.0 and later creates database indices automatically when the underlying table is created in the database. This means that if you are doing a fresh install of JIRA 3.0 (or later) you do not need to create indices manually. If you are upgrading JIRA from an earlier version (e.g. JIRA 2.6) and do not wish to create the indices manually, please follow these instructions and recreate (drop and create) JIRA's database (or remove all tables in the database) **AFTER** successfully exporting your data and before doing the import into the new version of JIRA. Removing the database will force JIRA to recreate all tables in the database and hence create all required indices.

> If upgrading from JIRA 2.6.1 or earlier to JIRA 3.0 (or above), JIRA will not create indices automatically, unless the database is removed and recreated.

If you do not wish to drop and recreate JIRA's database, you can add the indices manually by running the SQL statements shown below.

The syntax for creating indices differs between databases, so consult your documentation for the your database. In addition, if you change the database tables or fields that you use in `entitymodel.xml` , you will need to change the shown SQL statements.

Below is the SQL for creating indices on PostgreSQL (you will probably need to alter this for your database):

```
CREATE INDEX action_issue ON jiraaction (issueid, actiontype);

      CREATE INDEX chggroup_issue ON changegroup (issueid);

      CREATE INDEX chgitem_chggrp ON changeitem (groupid);

      CREATE INDEX cf_cfoption ON customfieldoption (CUSTOMFIELD);

      CREATE INDEX cfvalue_issue ON customfieldvalue (ISSUE, CUSTOMFIELD);

      CREATE INDEX attach_issue ON fileattachment (issueid);

      CREATE INDEX subscrpt_user ON filtersubscription (FILTER_I_D, USERNAME);
      CREATE INDEX subscrptn_group ON filtersubscription (FILTER_I_D, groupname);

      CREATE INDEX issue_key ON jiraissue (pkey);

      CREATE INDEX issuelink_src ON issuelink (SOURCE);
      CREATE INDEX issuelink_dest ON issuelink (DESTINATION);
      CREATE INDEX issuelink_type ON issuelink (LINKTYPE);

      CREATE INDEX linktypename ON issuelinktype (LINKNAME);
      CREATE INDEX linktypestyle ON issuelinktype (pstyle);

      CREATE INDEX node_source ON nodeassociation (SOURCE_NODE_ID, SOURCE_NODE_ENTITY);
      CREATE INDEX node_sink ON nodeassociation (SINK_NODE_ID, SINK_NODE_ENTITY);

      CREATE INDEX ntfctn_scheme ON notification (SCHEME);

      CREATE INDEX osgroup_name ON groupbase (groupname);

      CREATE INDEX mshipbase_user ON membershipbase (USER_NAME);
      CREATE INDEX mshipbase_group ON membershipbase (GROUP_NAME);

      CREATE INDEX osproperty_all ON propertyentry (ENTITY_NAME, ENTITY_ID);

      CREATE INDEX osuser_name ON userbase (username);

      CREATE INDEX sec_scheme ON schemeissuesecurities (SCHEME);

      CREATE INDEX sec_security ON schemeissuesecurities (SECURITY);

      CREATE INDEX prmssn_scheme ON schemepermissions (SCHEME);

      CREATE INDEX sr_author ON searchrequest (authorname);
      CREATE INDEX sr_group ON searchrequest (groupname);

      CREATE INDEX user_source ON userassociation (SOURCE_NAME);
      CREATE INDEX user_sink ON userassociation (SINK_NODE_ID, SINK_NODE_ENTITY);

      CREATE INDEX workflow_scheme ON workflowschemeentity (SCHEME);
```

Once you have created the index, you may need to tell your database to recompute its indices. For PostgreSQL, the command is `vacuumdb -U username -z -v database-name` . Consult your database documentation for your database specific command.

Logging and Profiling

On this page:

- Logging
  - Log file location
    - Changing the location of the log
  - Logging levels
    - Temporarily changing the logging level
    - Permanently changing the logging level
- Profiling
    - Temporarily enabling profiling
    - Permanently enabling profiling

Logging

JIRA uses a powerful logging module called log4j for runtime logging.

Log file location

The logs are written to your JIRA Home Directory (or the current working directory, if the JIRA home directory is not configured). You can view the location of the `atlassian-jira.log` (and the current working directory) in the **'File Paths'** section of the System Information page.

- Security-related information (e.g. login, logout, session creation/destruction, security denials) is written to `atlassian-jira-security.log`.

Changing the location of the log

In the `log4j.properties` file (located in the JIRA Home Directory),

1. Change the following line:

```
log4j.appender.filelog=com.atlassian.jira.logging.JiraHomeAppender
```

   ...to this:

```
log4j.appender.filelog=org.apache.log4j.RollingFileAppender
```

2. Change the following line to point to the new location of the log file:

```
log4j.appender.filelog.File=atlassian-jira.log
```

Logging levels

There are five logging levels available in log4j: `'DEBUG', 'INFO', 'WARN', 'ERROR'` and `'FATAL'`. Each logging level provides more logging information that the level before it:

- 'DEBUG'
- 'INFO'
- 'WARN'
- 'ERROR'
- 'FATAL'

'DEBUG' provides the most verbose logging and 'FATAL' provides the least verbose logging. The default level is WARN, meaning warnings and errors are displayed. Sometimes it is useful to adjust this level to see more detail.

The default logging levels can be changed either

- temporarily — your change to the logging level will not persist after you next restart JIRA, or
- permanently — your change to the logging level will persist, even after you restart JIRA.

For example, when troubleshooting, you might temporarily change the logging level from 'WARNING' to 'INFO' so as to get a more detailed error message or a stack trace. If you are unsure of which logging categories to adjust, the most helpful information generally comes from the `log4j.rootLogger` category and the `log4j`**<category>**`.com.atlassian` categories.

Temporarily changing the logging level

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu in the left-hand navigation column, click the **'Logging & Profiling'** link.
4. The **'Logging & Profiling'** page will display. This lists all the defined log4j categories and their current logging levels. To edit the logging level of a category, click the **'Edit'** link next to the category in the list.
5. Choose the new logging level for the category, then click **'Update'.**

Permanently changing the logging level

1. Edit the `log4j.properties` file, which is found in the `WEB-INF/classes/` directory under the JIRA web application directory.
2. Locate the section:

```
log4j.logger.com.atlassian = WARN, console, filelog
log4j.additivity.com.atlassian = false
```

   and make your desired changes (e.g. change the `WARN` to `DEBUG`).

> The `log4j.properties` file that ships with JIRA has the default logging levels specified. For more information about log4j (e.g. how to define new logging categories), and about the format of the `log4j.properties` file, please refer to the documentation on the log4j site.

3. *(Only if you are running JIRA EAR-WAR) Reduild and redeploy the webapp.*
4. Restart JIRA.

> If your application server configures logging itself, you may need to remove the `log4j.properties` file. You may also need to remove the entire `log4j.jar` file to get logging to work.

Profiling

If you are experiencing performance issues with JIRA, it is often helpful to see where the slow-downs occur. To do this you can enable profiling as described below, and then analyse the performance traces that JIRA will produce for every request. An example of a profiling trace is shown below:

```
[Filter: profiling] Turning filter on [jira_profile=on]
[116ms] - /secure/Dashboard.jspa
  [5ms] - IssueManager.execute()
    [5ms] - IssueManager.execute()
      [5ms] - Searching Issues
  [29ms] - IssueManager.execute()
    [29ms] - IssueManager.execute()
      [29ms] - Searching Issues
        [28ms] - Lucene Query
          [23ms] - Lucene Search
```

Profiling can be enabled either

- temporarily — profiling will be enabled until you next restart JIRA, or
- permanently — profiling will remain enabled, even after you restart JIRA.

Temporarily enabling profiling

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu in the left-hand navigation column, click the **'Logging & Profiling'** link.
4. The **'Logging & Profiling'** page will display. Scroll to the bottom of the screen. The **'Profiling'** section will inform you whether profiling is currently turned **'ON'** or **'OFF',** and will also show or hide the **'Disable profiling'** and **'Enable profiling'** links respectively.
    - To turn Profiling **'ON',** click the **'Enable profiling'** link. JIRA will start generating profiling traces in its log.
    - To turn Profiling **'OFF',** click the **'Disable profiling'** link.

Permanently enabling profiling

1. Edit `atlassian-jira/WEB-INF/web.xml` (if you are using JIRA Standalone) or `webapp/WEB-INF/web.xml` in your JIRA installation directory (if you are using JIRA EAR/WAR).
2. Find the following entry:

```
<filter>
            <filter-name>profiling</filter-name>
            <filter-class>com.atlassian.jira.web.filters.JIRAProfilingFilter</filter-class>
            <init-param>
                <!-- specify the which HTTP parameter to use to turn the filter on or off
-->
                <!-- if not specified - defaults to "profile.filter" -->
                <param-name>activate.param</param-name>
                <param-value>jira_profile</param-value>
            </init-param>
            <init-param>
                <!-- specify the whether to start the filter automatically -->
                <!-- if not specified - defaults to "true" -->
                <param-name>autostart</param-name>
                <param-value>false</param-value>
            </init-param>
        </filter>
```

3. Modify the `autostart` parameter to be **true** instead of **false.** That is:

```
<init-param>
                <!-- specify the whether to start the filter automatically -->
                <!-- if not specified - defaults to "true" -->
                <param-name>autostart</param-name>
                <param-value>true</param-value>
            </init-param>
```

4. Save the file. If you are running JIRA Standalone this is all you have to do. Profiling will be enabled when you restart JIRA.
5. If you are running JIRA EAR/WAR, re-build and re-deploy the JIRA web application using the `build` script and the instructions for your application server.

Logging email protocol details

To assist in resolving email issues, it can be useful to know exactly what is passing over the wire between JIRA and SMTP, POP or IMAP servers. This page describes how to enable protocol-level logging.

JIRA 3.7.2+

Set **-Dmail.debug=true** and restart JIRA.

JIRA 3.6.5 -> 3.7.1

Due to a bug, just setting `-Dmail.debug=true` won't take effect. Instead the variable needs to be set in a properties file.

In JIRA Standalone..

1. Create `atlassian-jira/WEB-INF/classes/atlassian-mail.properties`, containing one line:
   `mail.debug=true`
2. Restart JIRA

In JIRA WAR/Webapp..

1. Create `edit-webapp/WEB-INF/classes/atlassian-mail.properties`, containing:
   `mail.debug=true`
2. Rebuild the .war (run `build.sh` or `build.bat`)
3. Redeploy the .war in your app server.

JIRA pre-3.6.5

Untested - probably the `atlassian-mail.properties` variant will work.

Output

In the logs, you should then see JavaMail initialize the first time a mail operation is run:

```
DEBUG: JavaMail version 1.3.2
DEBUG: java.io.FileNotFoundException: /usr/local/jdk1.6.0/jre/lib/javamail.providers (No such file
or directory)
DEBUG: !anyLoaded
DEBUG: not loading resource: /META-INF/javamail.providers
DEBUG: successfully loaded resource: /META-INF/javamail.default.providers
DEBUG: Tables of loaded providers
DEBUG: Providers Listed By Class Name:
{com.sun.mail.smtp.SMTPSSLTransport=javax.mail.Provider[TRANSPORT,smtps,com.sun.mail.smtp.SMTPSSLTran
Microsystems, Inc],
com.sun.mail.smtp.SMTPTransport=javax.mail.Provider[TRANSPORT,smtp,com.sun.mail.smtp.SMTPTransport,Su
Microsystems, Inc],
com.sun.mail.imap.IMAPSSLStore=javax.mail.Provider[STORE,imaps,com.sun.mail.imap.IMAPSSLStore,Sun
Microsystems, Inc],
com.sun.mail.pop3.POP3SSLStore=javax.mail.Provider[STORE,pop3s,com.sun.mail.pop3.POP3SSLStore,Sun
Microsystems, Inc],
com.sun.mail.imap.IMAPStore=javax.mail.Provider[STORE,imap,com.sun.mail.imap.IMAPStore,Sun
Microsystems, Inc],
com.sun.mail.pop3.POP3Store=javax.mail.Provider[STORE,pop3,com.sun.mail.pop3.POP3Store,Sun
Microsystems, Inc]}
DEBUG: Providers Listed By Protocol:
{imaps=javax.mail.Provider[STORE,imaps,com.sun.mail.imap.IMAPSSLStore,Sun Microsystems, Inc],
imap=javax.mail.Provider[STORE,imap,com.sun.mail.imap.IMAPStore,Sun Microsystems, Inc],
smtps=javax.mail.Provider[TRANSPORT,smtps,com.sun.mail.smtp.SMTPSSLTransport,Sun Microsystems,
Inc], pop3=javax.mail.Provider[STORE,pop3,com.sun.mail.pop3.POP3Store,Sun Microsystems, Inc],
pop3s=javax.mail.Provider[STORE,pop3s,com.sun.mail.pop3.POP3SSLStore,Sun Microsystems, Inc],
smtp=javax.mail.Provider[TRANSPORT,smtp,com.sun.mail.smtp.SMTPTransport,Sun Microsystems, Inc]}
DEBUG: successfully loaded resource: /META-INF/javamail.default.address.map
DEBUG: !anyLoaded
DEBUG: not loading resource: /META-INF/javamail.address.map
DEBUG: java.io.FileNotFoundException: /usr/local/jdk1.6.0/jre/lib/javamail.address.map (No such
file or directory)
DEBUG: getProvider() returning javax.mail.Provider[STORE,pop3,com.sun.mail.pop3.POP3Store,Sun
Microsystems, Inc]
DEBUG POP3: connecting to host "localhost", port 110, isSSL false
S: +OK Dovecot ready.
C: USER pop-test
S: +OK
C: PASS pop-test
[Filter: profiling] Using parameter [jira_profile]
[Filter: profiling] defaulting to off [autostart=false]
[Filter: profiling] Turning filter off [jira_profile=off]
S: +OK Logged in.
C: STAT
S: +OK 2 1339
C: NOOP
S: +OK
C: TOP 1 0
S: +OK
Return-path: <pop-test@atlassian.com>
Envelope-to: pop-test@localhost
Delivery-date: Wed, 28 Feb 2007 16:28:26 +1100
Received: from pop-test by teacup.atlassian.com with local (Exim 4.63)
        (envelope-from <pop-test@atlassian.com>)
        id 1HMHMY-0007gB-8O
        for pop-test@localhost; Wed, 28 Feb 2007 16:28:26 +1100
Date: Wed, 28 Feb 2007 16:28:26 +1100
From: Jeff Turner <jeff@atlassian.com>
To: pop-test@localhost
Subject: Testing to me - Wed Feb 28 16:28:23 EST 2007
Message-ID: <20070228052826.GA29514@atlassian.com>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline
User-Agent: Mutt/1.5.13 (2006-08-11)
Lines: 0
```

Related pages

Page: Logging JIRA SQL Queries (JIRA 4.3)

Restoring Data

This page describes how to restore JIRA data from a backup. This is the second step in either upgrading your server to a new JIRA revision, or splitting your JIRA instance across multiple servers.

If you wish restore a single project from your backup into an existing JIRA instance, refer to these instructions on restoring a project from backup instead.

When restoring data, **all data in the existing JIRA database is deleted,** including all user accounts. Before you begin, make sure you have the password to a login in the backup file that has the 'JIRA System Administrator' global permission.

Restoring JIRA from backup is a three stage process:

1. *(Optional)* Disable email sending/receiving
2. Restore data from XML to the database
3. *(Optional)* Restore the attachments to the attachments directory (if attachments were backed up)

1. Disabling email sending/receiving

If you are restoring production data into a *test* JIRA instance for experimentation purposes, you probably want to disable JIRA's email interaction features before you begin:

- **Disable email notifications** — if JIRA is configured to send emails about changes to issues, and you want to make test modifications to the copy, you should start JIRA with the `-Datlassian.mail.senddisabled=true` flag.
- **Disable POP/IMAP email polling** — if JIRA is configured to poll a mailbox (to create issues from mails), you will likely want to disable this polling on your test installation. This is done by setting the `-Datlassian.mail.fetchdisabled=true` flag.

Exactly how to set these flags is dependent on your particular application server, but for JIRA Standalone (i.e. Tomcat), it is done by setting the JAVA_OPTS environment variable before starting JIRA:

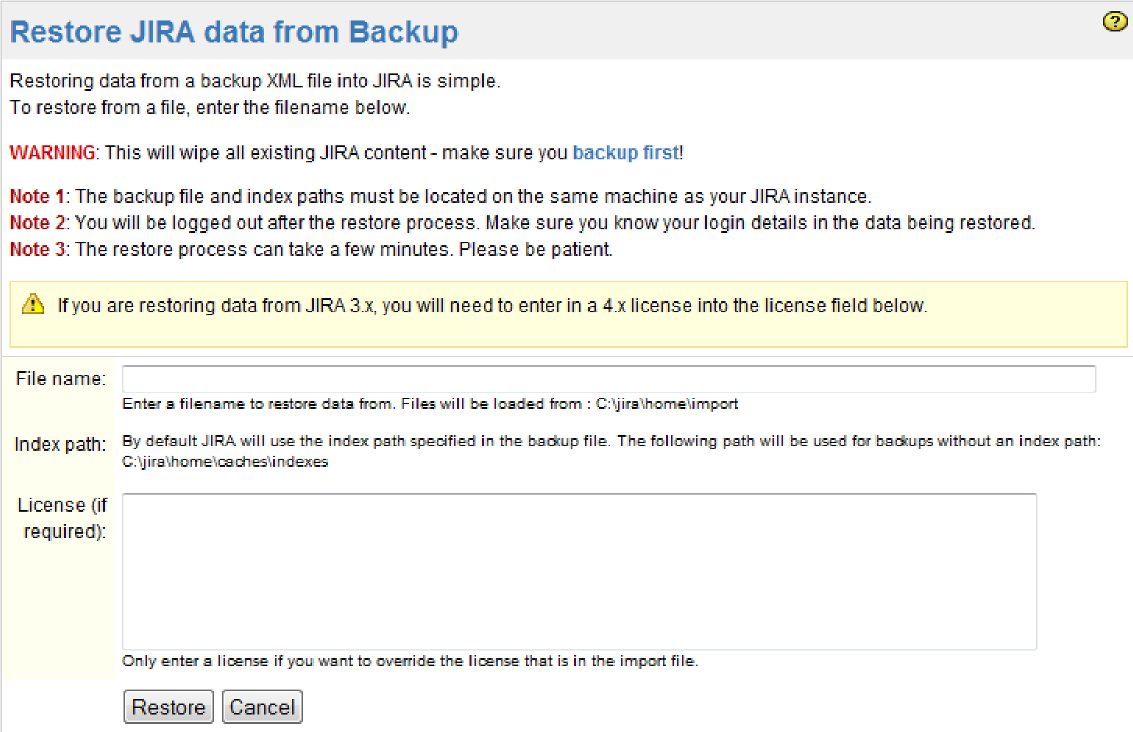
```
set JAVA_OPTS="-Datlassian.mail.senddisabled=true -Datlassian.mail.fetchdisabled=true"
cd bin
startup.bat
```

You could also try un-commenting the `JAVA_OPTS="-Datlassian.mail.senddisabled=true -Datlassian.mail.fetchdisabled=true` line from your `/bin/setenv.sh` file and then running startup.

2. Restoring XML data

Note: these instructions assume that you are restoring an XML backup. If you used native database tools to create your backup, the restore process will be tool-specific so these instructions do not apply to you.

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'Import & Export'** sub-menu in the left-hand navigation column, click the **'Restore Data from XML'** link. This will display the **'Restore data from Backup** page:



4. In the **'File name'** field, fill in the file name of the ZIP or XML backup file generated by JIRA.
5. The **Index Path** field shows the location where JIRA will restore the search index data from the XML backup file and it cannot be modified. This location matches the index path specified in the XML backup file. However, if the XML backup does not specify this path, JIRA will restore the search index to the `caches/indexes` subdirectory of the JIRA home directory.

> - The contents of the index directory may be deleted by the restore process.
> - The index directory should *only* contain JIRA index data.

6. Click the **'Restore'** button, and wait while your JIRA data is restored.
7. JIRA will come back, informing you that you have been logged out. This is done because all the users from the previous JIRA instance have been deleted and replaced with users from the JIRA export file.

It is recommended that you avoid passing through a proxy when performing an XML restore, especially if your JIRA instance is very large. Using a proxy may cause timeout errors.

3. Restoring attachments

If you created a backup of the attachments directory, you will need to restore the backup into a directory where JIRA can access it.

If you use a custom directory for storing your attachments, ensure that JIRA has read and write permissions to this directory and its subdirectories.

The process of restoring the attachments backup depends on the way it was created. Usually you can use the same tool to restore the backup as the one that was used to create it (see *Backing up attachments).*

If you are restoring the attachments into a different location (i.e. a different directory path) from where they were previously located (e.g. this will be the case when moving servers), please follow the instructions provided in *Configuring attachments* to change the location of the attachments directory so that JIRA can find the restored attachments.

Restoring a Project from Backup

JIRA's Project Import tool allows you to restore a single project from a backup file into your JIRA instance. This feature is particularly useful if you do not wish to overwrite the existing projects or configuration of your JIRA instance by importing the entire backup. Your backup file must have been created using JIRA's backup tool. You cannot import a project from a backup using your native database tools.

Please note, if you wish to restore a project from a backup file into a **new empty JIRA instance,** we highly recommend that you **do not use the Project Import tool.** Restoring the entire backup file into the new instance and then deleting unwanted projects is much simpler in this scenario, as you will retain the configuration settings from your backup. Instructions on moving a project to a new instance are available on the splitting a JIRA instance page. Projects can be deleted via the 'Projects' page in JIRA, which is accessed from the '*Administration' menu.

On this page:

- Before you begin
  - Project Import Restrictions
    - JIRA versions do not match

            - Custom fields plugin versions do not match
- Restoring your project
    - Preparing your target JIRA instance
        - 1. Setting up the project
        - 2. Setting up users and groups
        - 3. Setting up custom fields
        - 4. Setting up workflows, system fields, groups and roles
        - 5. Setting up links
    - Project Import
        - 1. Specify the backup file
        - 2. Select a project to restore
        - 3. Review data mapping validations
        - 4. Verify the restored project
    - Need Help?

Before you begin

Restoring a project from a backup is not a trivial task. You may be required to change the configuration of your target JIRA instance to accommodate the project import. Additionally, the Project Import data mapping can be resource intensive on your hardware and may take a long time to complete, if you are importing a large project. Note, the Project Import tool will lock out your instance of JIRA during the actual data import (not during the validations), so please ensure that your instance does not need to be accessible during this time.

> We strongly recommend that you perform a full backup of your target JIRA instance before attempting to restore a project into it.

Project Import Restrictions

The Project Import tool will only import a project between identical instances of JIRA. That is;

- The **version** of JIRA in which your backup was created must be identical to the version of your target JIRA instance, e.g. if your backup file was created in JIRA 4.0, then your target instance of JIRA must be version 4.0.
- If your instance of JIRA had a **custom fields plugin** (e.g. JIRA Toolkit) installed when the backup file was created and the custom field was used in your project, then your target instance of JIRA must have the same version of the plugin installed for the Project Import tool to automatically work.

If any of these restrictions apply and you still wish to restore your project from backup, you will need to create a compatible backup file before importing your project by following the appropriate instructions below.

JIRA versions do not match

- If your backup file was created in an earlier version of JIRA than your target instance of JIRA:
    1. Set up a test JIRA instance, which is the same version as your target instance of JIRA. Make sure that the test JIRA instance uses a separate database and index from your target JIRA instance.
    2. Import the backup file into a test JIRA instance. (This will completely overwrite the test instance.)
    3. Create a new backup file from your test JIRA instance. You can now use this backup to import a specific project into your target production instance.
- If your backup file is from a later version of JIRA than your target instance of JIRA:
    1. Upgrade the version of your target instance of JIRA to match the version of JIRA in which the backup was created.

Custom fields plugin versions do not match

- If the custom fields plugin from your backup is an earlier version than the custom fields plugin in your target instance of JIRA:
    1. Import the backup file into a test JIRA instance. Make sure that the test JIRA instance uses a separate database and index from your target JIRA instance, as the import will overwrite all data in the database.
    2. In your test JIRA instance, upgrade your version of your custom fields plugin to match the version of the plugin in your target instance of JIRA.
    3. Create a new backup file from your test JIRA instance.
- If the custom fields plugin from your backup is a later version than the custom fields plugin in your target instance of JIRA:
    1. Upgrade the custom fields plugin version of your target instance of JIRA to match the version of JIRA in which the backup was created.

Restoring your project

The Project Import tool will attempt to map the data in your backup file into your target JIRA instance. If the project you are restoring does not exist in your target JIRA instance, it will create and populate the project with data from your backup. If the project already exists and is empty, it will attempt to populate the data from your backup into the project.

> **Why should I create an empty project in my target JIRA instance?**
> It is important to note that the primary task of the Project Import tool is to restore the data from your backup project into your target JIRA instance. While the Project Import tool can create a project if one does not exist in your target JIRA instance, it does not recreate any configuration settings that affect the data (e.g. screen schemes). If you wish to retain any configuration settings from your original project, we recommend that you create an empty project in your target instance with the necessary configuration settings before importing the data from your backup project.

You may wish to carry out the following setup tasks to ensure that your target JIRA instance is prepared to receive a project import beforehand. This can improve the time taken to validate the data mappings to your target JIRA instance.

If you are confident that your JIRA instance is set up appropriately, you can skip straight to the Project Import tool instructions. If there are any problems mapping the data from your backup file to your target JIRA instance, the Project Import tool will present validation errors for you to address.

Preparing your target JIRA instance

The Project Import tool does not automatically add missing project entities (e.g. user groups, issue priorities, custom field types) or fix incorrect associations (e.g. issue types in workflow schemes), so some manual work is required to set up your target JIRA instance so that your project can be restored. If the Project Import wizard cannot find a valid target location for any of the backup project data, it will not be able to restore the project. The instructions below describe the setup activities that address the most common data mapping problems that occur when restoring a project from a backup.

We recommend that you perform as much of the configuration of your target JIRA instance as possible, prior to starting the project import. However, if you do not have the information available to complete these setup activities beforehand, the Project Import wizard will inform you of any problems that need your attention. Alternatively, you can import the backup file into a test JIRA instance to check the configuration.

1. Setting up the project

If you have a project in your target JIRA instance that you wish to restore data into, you will need to ensure that the project is empty, i.e.

- no issues — read the Quick Search page to find out how to find all issues in a project
- no components — read the Component Management page to find out how to view a summary of a project's components
- no versions — read the Version Management page to find out how to view a summary of a project's versions

2. Setting up users and groups

The following types of users are considered mandatory for a project to be imported:

- reporter, assignee, component lead or project lead.

The following users are considered to be optional for a project to be imported:

- comment author/editor, work log author/editor, a user in a custom field (user picker), voter, watcher, change group author (i.e. someone who has changed an issue), attachment author, user in a project role.

The Project Import will attempt to create missing users if they are associated with the project. However, if the Project Import tool cannot create missing mandatory users in your target JIRA instance, then you will not be permitted to import the project. This may occur if you have External User Management enabled in your target JIRA instance — you will need to disable External User Management or create the missing users manually in your external user repository before commencing the import.

> Please note that if you do not have enough information about the users in your backup file, the Project Import wizard will provide a link to a table of the missing users on a new page as well as a link to an XML file containing the missing users (on the new page). The table of users will display a maximum of 100 users, but the XML file will always be available.

3. Setting up custom fields

As described previously, the versions of your custom field plugins must match between your backup and your target instance of JIRA for your project to be imported. You need to ensure that you have set up your custom fields correctly in your target JIRA instance, as follows:

- **Custom Field Type** — If you do not have a particular custom field type (e.g. cascading select) installed on your target JIRA, then all custom field data in your backup project that uses that custom field type will not be restored. However, your project can still be restored.
  For example, say you have a custom field, 'Title', which is a 'Cascading Select' field type and was used in your backup project (i.e. there is saved data for this field). If you do not have the 'Cascading Select' custom field type installed on your target JIRA, then all data for custom field 'Title' (and all other cascading select custom fields) will not be restored.
- **Custom Field Configuration** — If you do have a particular custom field type (e.g. multi select) installed on your target JIRA, then you must configure all of the custom fields (of that custom type) in your target JIRA to match the equivalent custom fields in your backup project. Additionally, if your custom field has selectable options, then any options used (i.e. there is saved data for these options) in your backup project must exist as options for the custom field in your target JIRA.
  For example, say you have a custom multi select field named, 'Preferred Contact Method', in your backup project with options,

'Phone', 'Email', 'Fax'. Only the 'Phone' and 'Email' were actually used in your backup project. In this scenario, you need to set up your target JIRA instance as follows:
  - There must be a field named, 'Preferred Contact Method', in your target JIRA instance.
  - 'Preferred Contact Method' must be a multi select custom field type.
  - 'Preferred Contact Method' must have the options, 'Phone' and 'Email' at a minimum, since they were used in your backup project. Please note, 'Preferred Contact Method' in your target JIRA could also have additional options like 'Fax', 'Post', 'Mobile', etc, if you choose.
    If you have not configured your existing custom field correctly, you will not be permitted to import your backup project until you correct the configuration errors in your target JIRA.
    You may wish to refer to the custom fields documentation for more information on the custom field types and custom field configuration.
- **Compatibility with the Project Import tool** — Custom fields also need to be compatible with the Project Import tool for the custom field data to be imported. Custom fields created prior to JIRA v4.0 cannot be imported by the Project Import tool. The custom field developer will need to make additional code changes to allow the Project Import tool to restore the custom field data. If any of the custom fields used in your backup file are not compatible with the Project Import tool, the Project Import wizard will warn you and the related custom field data will not be imported. All the target JIRA system custom fields and the custom fields included in JIRA plugins supported by Atlassian (e.g. JIRA Toolkit, Charting Plugin, Labels Plugin, Perforce Plugin) are compatible with the Project Import tool.

4. Setting up workflows, system fields, groups and roles

In addition to custom fields, you need to correctly configure the project workflow, issue attributes (e.g. issue types) and groups/roles in your target JIRA instance for your project to be restored successfully. Please ensure that you have reviewed the constraints on each of the following:

Workflows and Workflow Schemes:

- The project import process does not import workflows or workflow schemes. If you wish to retain a customised workflow from your backup, you will need to create a new workflow in your target JIRA instance and manually edit the new workflow (e.g. create steps and transitions) to reflect your old workflow (note, the default JIRA workflow is not editable). You will then have to add this workflow to a workflow scheme to activate it.
  Read more about creating and editing workflows in the JIRA Workflow and Activating Workflows documents. Please note that you may be required to create and edit a new workflow and workflow scheme to satisfy constraints on workflow entities from your backup, as described in the sections below, even if you do not wish to recreate the exact same workflow.

> **Do not** use the JIRA functionality for exporting and importing workflow XML definitions, to copy your backup workflow to your target JIRA instance. The workflow import/export tools do not include workflow screens in the process. Hence, you will be required to manually edit the workflow definitions post-import to match up new screens to the workflow, which is more work than it is worth.

Issue Types:

- If an issue type has been used in your backup project (i.e. there are issues of this issue type), you must set up the same issue type in your target JIRA project. You may want to consider setting up Issue Types for the project instead of globally.
- Workflow schemes — If you have associated an issue type with a particular workflow scheme in your backup project, you must ensure that the same association exists in your target JIRA. See the above section on **'Workflow and Workflow Schemes'** for further information on how to set up a workflow in your target JIRA instance.
- Custom field configuration schemes — custom field configuration schemes can be used to apply a custom field configuration to specific issue types. If you have configured a custom field differently for different issue types in your backup project, you may wish to set up a custom field configuration scheme to apply the same custom field configuration to the same issue types in your target JIRA instance. This will help ensure that you do not have a custom field for an issue type that is configured incorrectly (e.g. missing an option, if it has multiple selectable options), as described in the 'Setting up custom fields' section above.

Statuses:

- If an issue status has been used in your backup project (i.e. there are issues with the status), you must set up the same status in your target JIRA project.
- Workflow schemes — If you have linked a status into a particular workflow scheme in your backup project, you must ensure that the same association exists in your target JIRA. See the above section on 'Workflow and Workflow Schemes' for further information on how to set up a workflow in your target JIRA instance.

> Make sure to match the **Linked Status** name, not the **Step Name**, when inspecting your workflow.

Security Levels:

- If an issue security level has been used in your backup project (i.e. there are issues with this security level), it must be set up in your target instance of JIRA. If you did not create an existing empty project, we recommend that you do so and set up the appropriate security levels for the project (via an issue security scheme).
- Issue Security schemes — Not applicable. It does not matter which users, groups or project roles are assigned to which security levels, as long as the appropriate security levels exist (please see the constraints on security levels in the 'Setting up entities and types' section).

Priority:

- If an issue priority has been used in your backup project (i.e. there are issues with this priority), it must be set up in your target instance of JIRA.

Resolution:

- If an issue resolution has been used in your backup project (i.e. there are issues with this resolution), it must be set up in your target instance of JIRA.

Issue Link Type:

- If an issue link type has been used in your backup project (i.e. there are issues associated by this link type), it must be set up in your target instance of JIRA.

Project Role:

- If a project role has been used in your backup project (i.e. there are users/groups assigned to this project role), it must be set up in your target instance of JIRA.
(Note: The Project Import tool will copy across the project role membership from your backup project to your target JIRA instance, if you choose. See the Project Import section for further details).

Group:

- If a user group has been used in your backup project (i.e. there are users in this group), it must be set up in your target instance of JIRA.

A note about schemes
The project import process does not directly affect schemes, although entities and types associated with schemes may be affected as described above. Please note that the following schemes are not affected at all by the project import:

- Permission schemes — Not applicable. Permissions schemes do not need to match between the backup and target instance of JIRA.
- Notification schemes — Not applicable. Notification schemes do not need to match between the backup and target instance of JIRA.
- Screen schemes — Not applicable. Screen schemes do not need to match between the backup and target instance of JIRA.
- Issue type screen schemes — Not applicable. Issue type screen schemes do not need to match between the backup and target instance of JIRA.
- Field Configuration schemes — Not applicable. Please note that if a field was configured as optional in your backup project and is configured as a required field in your target JIRA instance, then the project will still be imported even if the field is empty. However, this field will be enforced as mandatory the next time a user edits an issue containing the field.

5. Setting up links

The Project Import tool will automatically create all issue links between issues within your backed up project. It will also try to create links between the backup project and another project, as long as the other project already exists in your target JIRA instance with the relevant issue keys. If the source/target of a link cannot be found (i.e. the entire project or the particular issue may be missing), the link will not be created although the project will still be imported.

Note that the Project Import tool will create issue links between projects in either direction (source to target, or target to source). This means that if you import two projects from the same backup file, the second project import will create all of the links between the two projects that were missing from the first project import.

Once you have completed as many of the setup tasks as you are able to, run the Project Import tool.

Project Import

Restoring your project is a four step process:

1. Specify the backup file
2. Select a project
3. Review data mapping validations
4. Verify the restored project

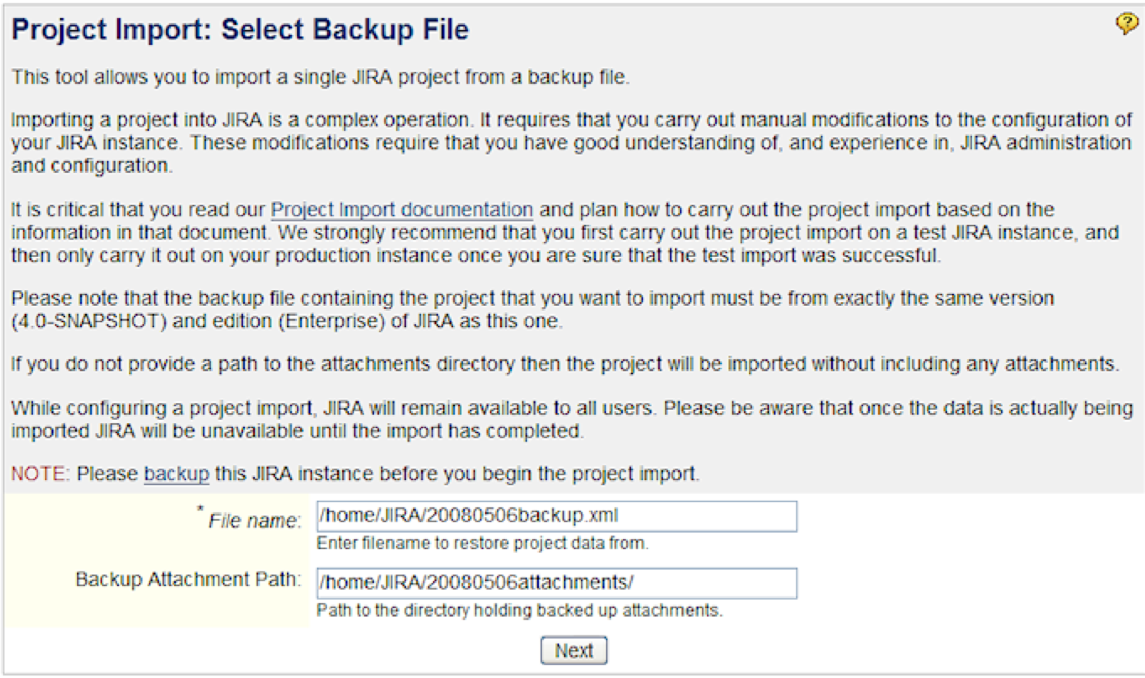
If you start the Project Import tool, we strongly recommend that you complete all steps of the wizard before performing any other activities in JIRA. Please be aware that it can take some time to validate the data mappings and then import the project.

You will most likely need to navigate away from the Project Import wizard to correct your JIRA configuration, as advised by validation errors in the wizard. If you have to navigate to other pages in JIRA to correct your JIRA configuration or for other activities, you should:

- ***(recommended)*** open a separate session of JIRA in a new browser window/tab. When you return to the Project Import wizard in the original browser window/tab, you can use the **'Refresh validations'** button on the validation screen to re-validate the data mappings; or,
- wait until the progress bar completes for the step you are currently in, before navigating elsewhere in JIRA. The state of the Project Import wizard will be saved until you log out of JIRA, your user session expires or you commence a different project import. You can

resume your project import by returning to the Project Import page (via the main Administration menu) and selecting the 'resume' link on the first page of the wizard.

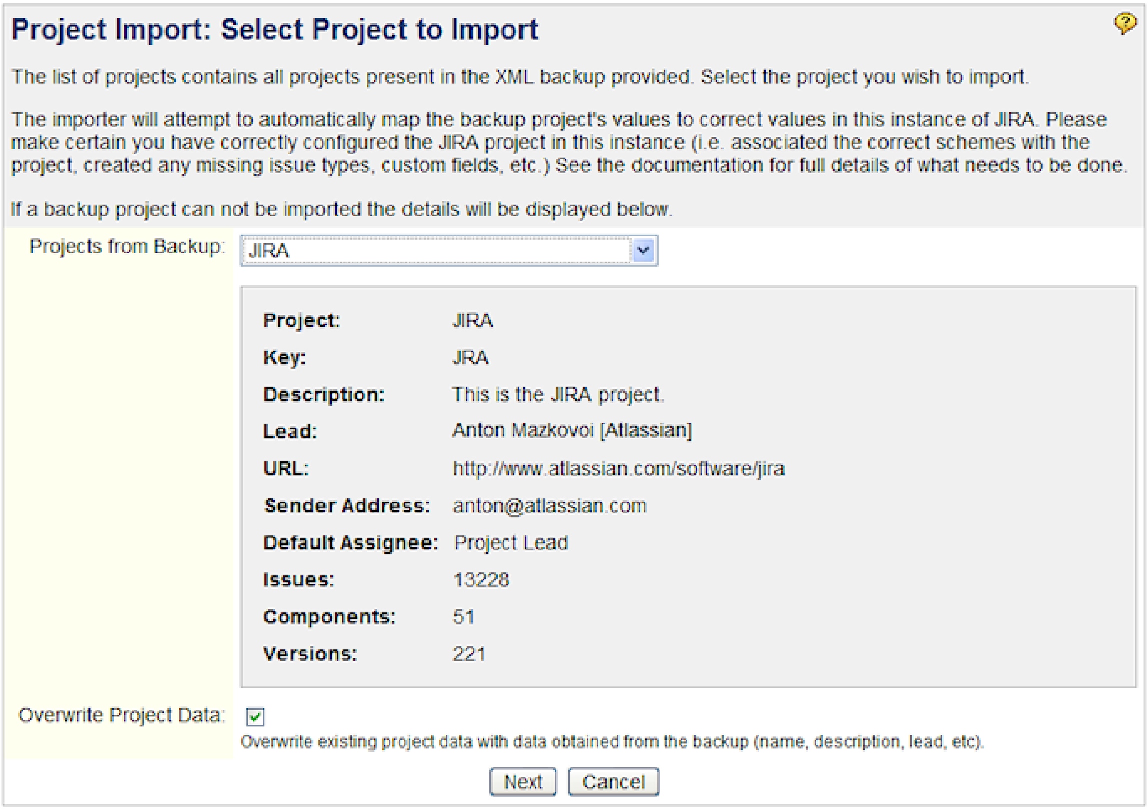
1. Specify the backup file



To start the Project Import tool,

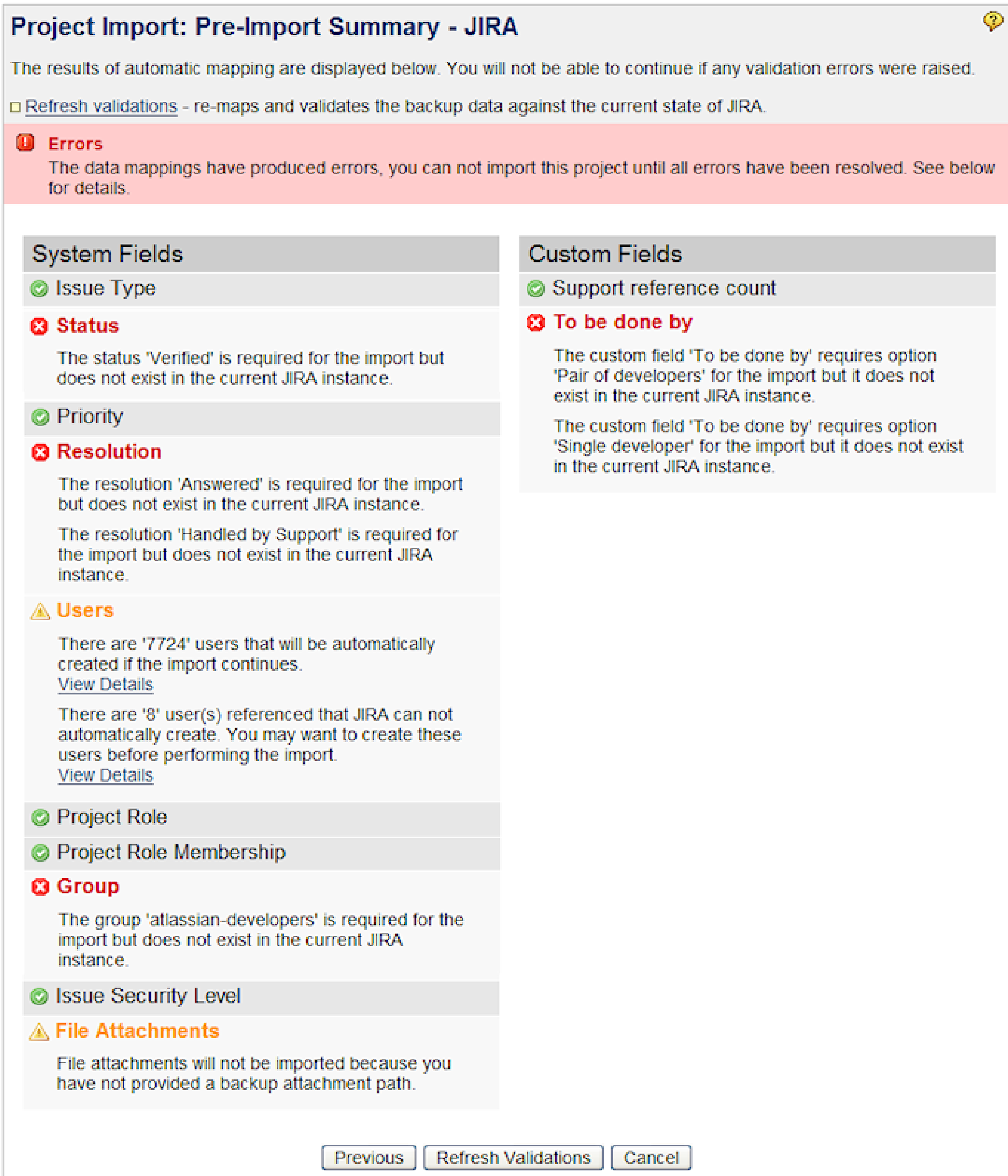
1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Click the **'Project Import'** link in the left hand menu. The first step of the Project Import wizard will display, ' Project Import: Select Backup File'.
4. Specify the path and name of your backup file in the 'File name' field. Your backup file must be an XML or ZIP file (as exported by JIRA).
5. Specify the path where you have backed up the attachments (add anchor to backup attachments section) for your project in the **'Backup Attachment Path'** field. Do not specify the attachment path for your target instance of JIRA as the backup attachment path, as the Project Import tool will overwrite attachments in that directory. Please also ensure that you have enabled file attachments in your target JIRA instance. You will not be allowed to proceed with the import if you have specified a backup attachment path and do not enable file attachments in your target JIRA instance.
Note: You can choose to not specify a backup attachment path. If so, you will be able to restore your project from backup, however it will have no attachments associated with it. Please note, you cannot restore your attachments separately if you do not restore them as part of the project import, as the database entries for the attachments will be missing.

2. Select a project to restore



1. Select a project to restore from the **'Projects from Backup'** dropdown. This dropdown will list all of the projects contained in your backup file.
2. If you have a valid project to restore from your backup, and your target JIRA instance has an existing empty project, then the **'Overwrite Project Details'** option will display. Select the **'Overwrite Project Details'** option if you want to overwrite the project details of the existing empty project with the project details from your backup. The project details are the Name, URL, Project Lead, Default Assignee and Description of the project, as well as any project role members set up on your project. If there is no existing empty project in your target instance of JIRA, this option will be checked and disabled as the Project Import will create the project with project details from your backup file.

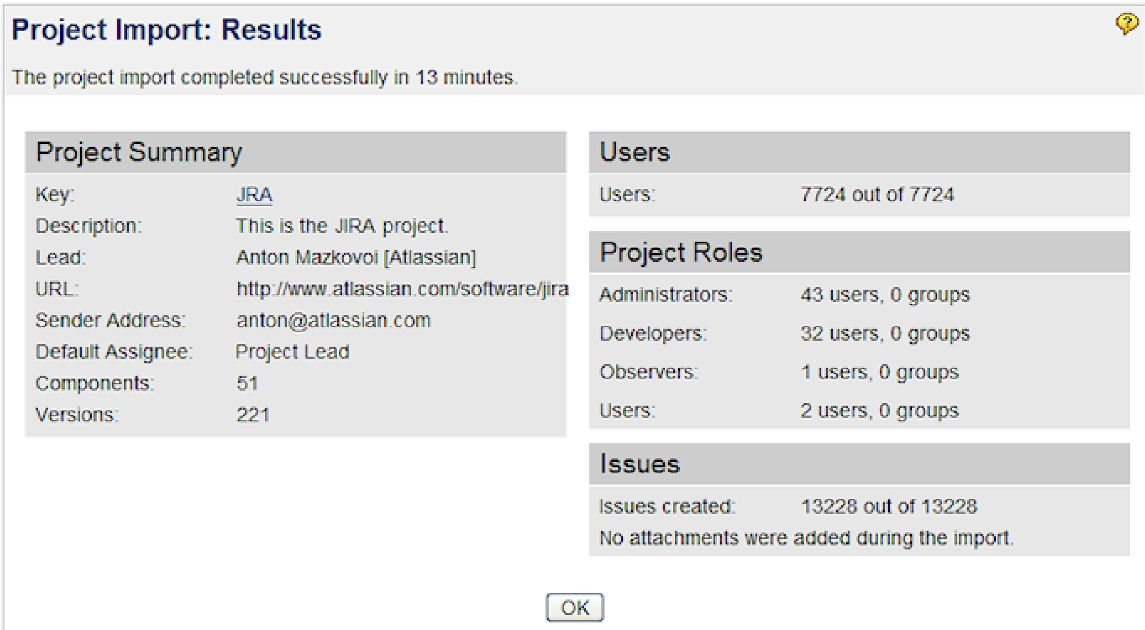
3. Review data mapping validations



1. The Project Import wizard will attempt to validate the data mappings required to import your project from the backup file. You can review the validations at this step of the wizard and modify your target JIRA instance as required.
    - A tick symbol ( ) means that there are no problems with mapping these entities.
    - An exclamation mark symbol ( ) means that there are problems with the data mapping that you should review before importing the project, but the project can still be imported. For example, a missing optional user that cannot be created automatically by the Project Import tool.
    - A cross symbol ( ) means that there are problems with the data mapping that must be fixed before you can import the project. For example, an Issue Type that is used in the backed up project is missing in your target JIRA instance.
2. The 'Preparing your target JIRA instance' section on this page lists the common data mapping errors.
3. Once you have resolved the data validation errors as required, click **'Import'** to commence the import of data from your backup file.

> The Project Import tool will lock out your instance of JIRA during the actual data import (not during the validations), so please ensure that your instance does not need to be accessible during this time.

4. Verify the restored project



1. Once the Project Tool has finished running, click **'OK'** to navigate to the restored project. You should verify that the issues, components and versions have been restored correctly. You should also check that any custom field data and links have been restored correctly.
2. Check that your attachments were correctly restored from your attachments backup directory.

> The Project Import tool will add an entry to every imported issue's Change History, showing when the issue was imported. Note that old entries in the Change History, from before the import, are retained for historical purposes only. Old entries may contain inconsistent data, since the configuration of the old and new JIRA systems may be different.

What if something went wrong?

- If your project import **did not complete,** you can refer to the JIRA log file. The Project Import tool will log details of the operation to this file, including any unexpected errors and exceptions. e.g. database locked out, disk full... etc.
- If your project import completed but **did not restore your project as expected,** you may wish to attempt to fix the problem manually in your target JIRA instance. You may also wish to try deleting the project in your target JIRA instance and re-importing it from backup, paying special note to any warning validations (e.g. users that will not be added automatically).

If you cannot resolve the problem yourself, you can contact us for assistance. Please see the **'Need help'** section below for details.

Need Help?

Need further help? You can raise a support request in the JIRA project at https://support.atlassian.com for assistance from our support team. Please attach to the support case:

- the backup file you are trying to import projects from, and
- the following information from your target JIRA instance:
  - your log file
  - an XML backup of your target JIRA instance
  - a copy and paste of the **entire contents** of the **System Info** page (accessed via the **Administration** tab), so that we know the details of your JIRA configuration.

You can anonymise the XML backups, if your data contains sensitive information.

Optimising Performance

This page is deprecated. Please see Crashes and Performance Issues Troubleshooting instead.

Backing Up Data

This page describes how to back up your JIRA data, and establish processes for maintaining continual backups. Backing up your JIRA data is the first step in upgrading your server to a new JIRA revision, or splitting your JIRA instance across multiple servers. See also *Restoring JIRA data* and *Restoring a Project from Backup*.

Creating a complete backup of JIRA consists of two stages:

- 1. Backing up database contents
  - Using native database backup tools

    - Using JIRA's XML backup utility
- 2. Backing up the `data` directory

1. Backing up database contents

There are two possibilities: native database backup tools, or JIRA's XML backup utility.

> For production use, it is **strongly recommended** that for regular backups, you use native database backup tools instead of JIRA's XML backup service.
>
> When JIRA is in use, XML backups are not guaranteed to be consistent as the database may be updated during the backup process. JIRA does not report any warnings or error messages when an XML backup is generated with inconsistencies and such XML backups will fail during the restore process. Native database backup tools offer a much more consistent and reliable means of storing (and restoring) data.

Using native database backup tools

All serious databases come with tools to back up and restore databases (the 'MS' in RDBMS). We strongly recommend these tools in preference to the XML backup option described below, as they:

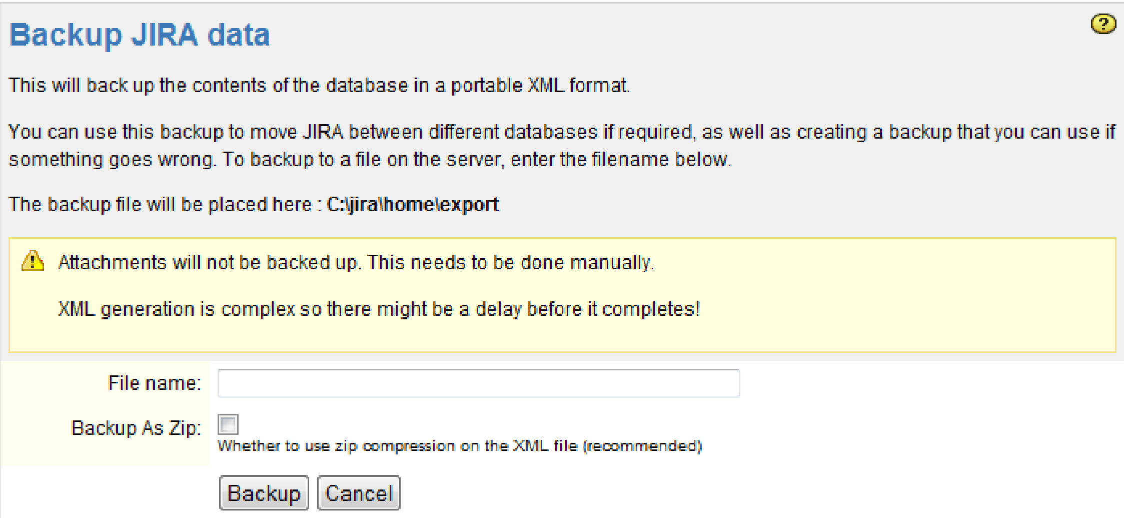
- ensure integrity of the database by taking the backup at a single point in time
- are much faster and less resource-intensive than JIRA's XML backup.
- integrate with existing backup strategies (e.g. allowing one backup run for all database-using apps).
- may allow for incremental (as opposed to 'full') backups, saving disk space.
- avoid character encoding and format issues relating to JIRA's use of XML as a backup format.

See the documentation for your database on how to set up periodic backups. This typically involves a cron job or Windows scheduled task invoking a command-line tool like mysqldump or pg_dump .

Using JIRA's XML backup utility

To perform a once-off backup, e.g. before an upgrade, follow the steps below.

You can also configure scheduled XML backups, as described in *Automating JIRA Backups*.

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'Import & Export'** sub-menu in the left-hand navigation column, click the '**Backup Data to XML**' link. This will display the ' **Backup JIRA data**' page:
   Screenshot: The Backup JIRA Data Page
   

   As shown in the screenshot above, the backup will be stored within the `backups` directory of JIRA Home.
4. In **'File name'** field, type the name of the backup file. Ensure that JIRA has the necessary file system permissions to write to this location. (This should be the case if JIRA has permission to write to the JIRA Home directory.)
5. *(Optional but recommended)* Select the **'Backup as Zip'** check box.
6. Click the **'Backup'** button, and wait while your JIRA data is backed up.
7. When the backup is complete, a message will be displayed, confirming that JIRA has written the data to the file you specified.

2. Backing up the `data` directory

The `data` directory is a sub-directory of your JIRA Home Directory. It contains application data for JIRA, e.g. if you have attachments enabled, all files attached to JIRA issues are stored in the `data\attachments` directory (not in the database).

To back up the `data` directory, you need to create a snapshot of the `data` directory (including all files and subdirectories), then back up the snapshot. Note that the directory structure under the `data` directory **must** be preserved in the snapshot.

Creating this snapshot is an operating system-specific task, e.g.:

- On MS Windows, a batch script copying the directory can be written and scheduled periodically (Programs > Accessories > System Tools > Scheduled Tasks). There are also various utilities available to simplify this (eg. http://www.picozip.com).
- On Linux/Solaris, it is best to write a small shell script, placed in `/etc/cron.daily` , backing up files to a directory like `/var/backup/jira` . It is best to copy an existing script in `/etc/cron.daily` to ensure local conventions (file locations, lockfiles, permissions) are adhered to.

> **Your "attachments" directory may be located elsewhere**
>
> If you have put your `attachments` directory in a custom location (see Configuring File Attachments) rather than inside the `data` directory, you will also need to back up your `attachments` directory using the snapshot method described above.

Automating JIRA Backups

JIRA can be configured to automatically create an XML backup of JIRA data on a routine basis.

> The XML backup includes all data in the database. However, it **does not include** your attachments directory, JIRA Home Directory or JIRA Installation Directory, which are on the filesystem.

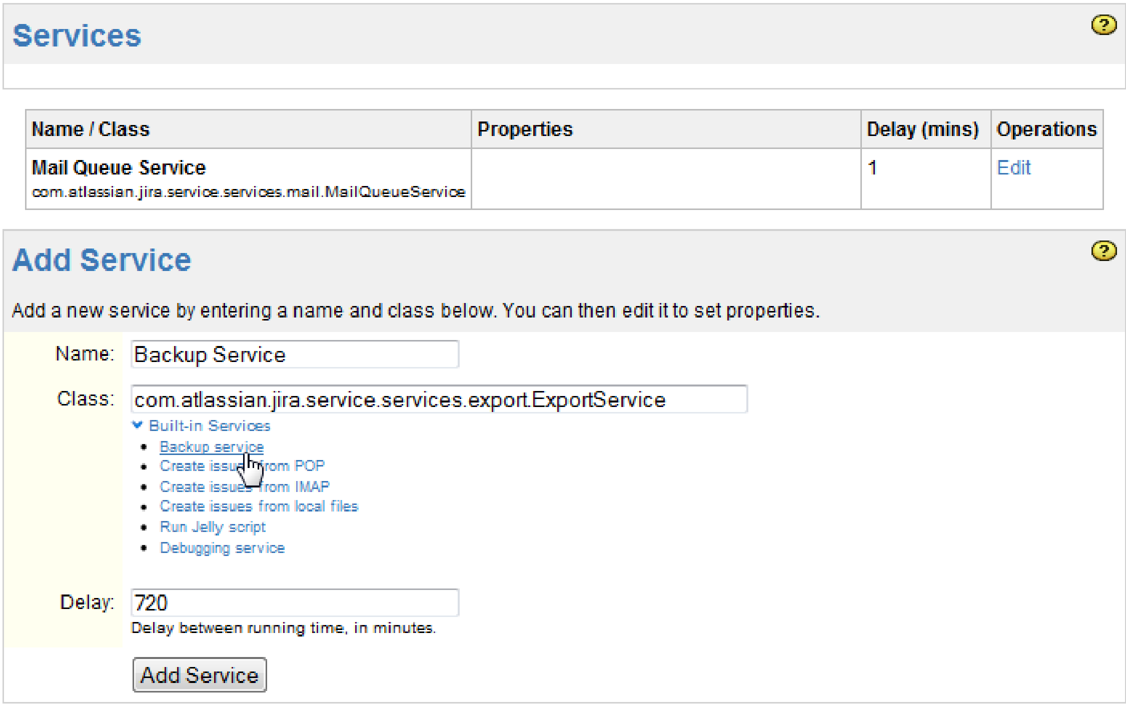
> For production use, it is **strongly recommended** that you use native database-specific tools instead of the XML backup service. XML backups are not guaranteed to be consistent, as the database may be updated during the backup process. Inconsistent backups are created successfully without any warnings or error messages, but fail during the restore process. Database-native tools offer a much more consistent and reliable means of storing data.

After installing JIRA, step 1 of the Setup Wizard prompts you to enable automated backups. If you chose **Use Default Directory**, a default backup service will be available, generating XML backups of your JIRA site (as ZIP files) every 12 hours. If you chose **Disable Automated Backups** or you want to set up a different backup service, follow the steps below.

You can also perform XML backups manually - see *Backing up data*.

To set up automated backups:

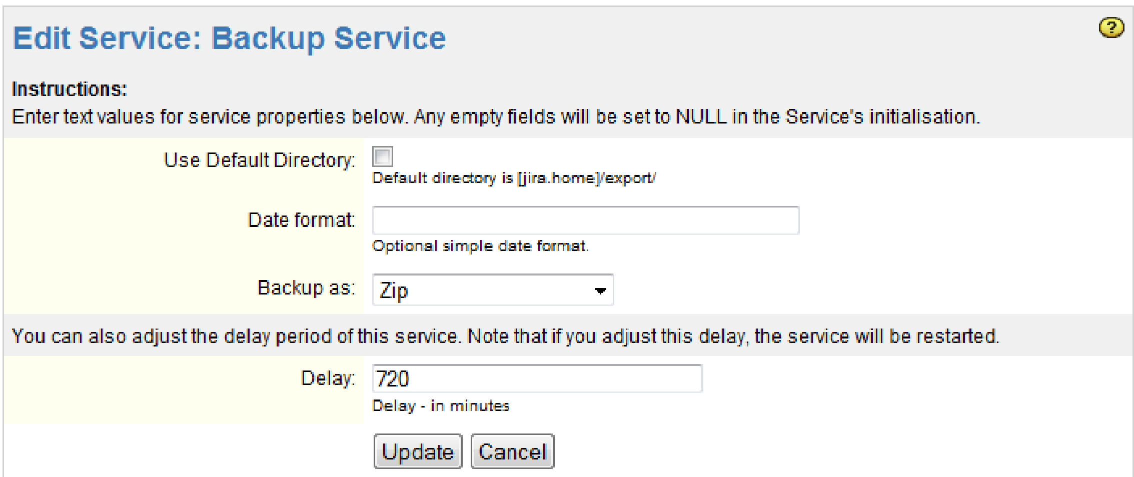
1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu in the left-hand navigation column, click the **'Services'** link.
4. This will display the **'Services'** page. It lists the current services running on this system. By default there should be one service running: **'Mail Queue Service'.** You cannot delete this service.
5. Fill in the **'Add Service'** form as follows:



- For '**Name**', enter a descriptive name, e.g. **`Backup Service`**
- For '**Class**', enter the appropriate class text string for the 'Backup service' using either of the following methods:
    - Select the 'Backup service' from the list of JIRA's 'built-in services'. To do this,
        a. Click the '**Built-in Services**' link below the 'Class' field to expand the list of JIRA's 'built-in services'.
        b. Click the '**Backup Service**' link. The 'Class' field will automatically be populated with the following class text string '`com.atlassian.jira.service.services.export.ExportService`'.
    - Type the class text string '`com.atlassian.jira.service.services.export.ExportService`' into the 'Class' field.
- For '**Delay**', enter the number of minutes between backups. A good default for this would be 720 minutes (12 hours).

> **Note**
> The interval specified in the Backup Service Delay (mins) is the time *when the next backup job will run since the last server restart*. Backup services cannot be scheduled to run at a specific time of day - please see JRA-1865 for more on this.

6. Click the **'Add Service'** button.
7. The 'Edit Service' page will be displayed. Fill in the following fields:



- Select the '**Use Default Directory**' check box.
- For **'Date format',** specify the format which JIRA will use to name the individual backup files. This format can be anything that SimpleDateFormat can parse. A good default is 'yyyy-MMM-dd-HHmm', which would generate files named like this: '2007-Mar-05-1322'.
- For **'Backup as:',** either:
    - Select **'XML'** to have JIRA store your data as an XML file; or
    - Select **Zip'** to have JIRA to compress your backup and store it as a ZIP file.

8. Click the '**Update**' button.
   Your backup service is now configured. XML backups will be performed according to the schedule you specified in the **Delay** field (above).
    - For every successful backup, an XML (or ZIP) file will be saved in the backup directory that you specified in the **Directory**

Name field (above).
- If a scheduled backup fails for any reason, the XML (or ZIP) file will be saved into the 'corrupted' directory, which is directly under your nominated backup directory. A file explaining the reason for the failure will be written to the 'corrupted' directory. This file will have the same name as the backup file, but with the extension '.failure.txt'.
JIRA will create the 'corrupted' directory if required - you do not need to create it.

Choosing a custom Backup Directory:

If you upgraded JIRA with an XML backup from a JIRA version prior to 4.2 and are editing an existing backup service which used a custom directory, you can choose between using that custom directory (which cannot be edited) or the default directory for this backup service. However, once you switch to using the default directory, you can no longer choose the custom directory option.

(The default directory location is the `export` subdirectory of the JIRA home directory.)

Preventing users from accessing JIRA during backups

For production use, it is **strongly recommended** that for regular backups, you use native database backup tools instead of JIRA's XML backup service.

When JIRA is in use, XML backups are not guaranteed to be consistent as the database may be updated during the backup process. JIRA does not report any warnings or error messages when an XML backup is generated with inconsistencies and such XML backups will fail during the restore process. Native database backup tools offer a much more consistent and reliable means of storing (and restoring) data.

If you perform an XML backup (e.g. when upgrading JIRA via a test environment or migrating JIRA to another server), you can follow one of these methods to prevent users from accessing JIRA and minimise inconsistencies in the backup file:

- **Recommended method:**
    - If you have an Apache or other web/proxy server sitting in front of JIRA, then you can stop Apache from proxying to JIRA, and serve a static HTML page with a nice message along the lines of "JIRA is undergoing maintenance". Note:
        - The administrator must be able to access JIRA directly (not through Apache) to perform the XML backup.
        - This method does not require JIRA to be restarted.
- *Alternative method 1:*
    1. Shut down JIRA, configure it to listen on a different port and restart. For JIRA Standalone, you would do this by editing the `server.xml` file. Change the following section:

```
<Connector port="8080"
            maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25"
maxSpareThreads="75" useBodyEncodingForURI="true"
            enableLookups="false" redirectPort="8443" acceptCount="100"
connectionTimeout="20000" disableUploadTimeout="true" />
```

        - Note: If you have enabled HTTPS, then you would need to edit the `HTTPS Connector` section as well.
    2. Restart JIRA and do the XML backup.
    3. Shut down JIRA, change all the settings back, then re-start JIRA.
- *Alternative method 2:*
    - If you have a firewall in front of JIRA, you could stop requests from getting through or change the port number that it uses. Note:
        - The administrator will need to log in to JIRA on the temporary port number (or access it from behind the firewall), to perform the XML backup.
        - This method does not require JIRA to be restarted.
- *Alternative method 3:*
    - In your database server, remove **'write'** permissions from the database user (e.g. `jirauser`) that JIRA uses.
        - Users will be able to read but not update issues during the backup.
        - This method does not require JIRA to be restarted.

Before you start:
Whichever method you choose, we recommend setting an Announcement Banner to warn your users that JIRA will be unavailable for a period of time.

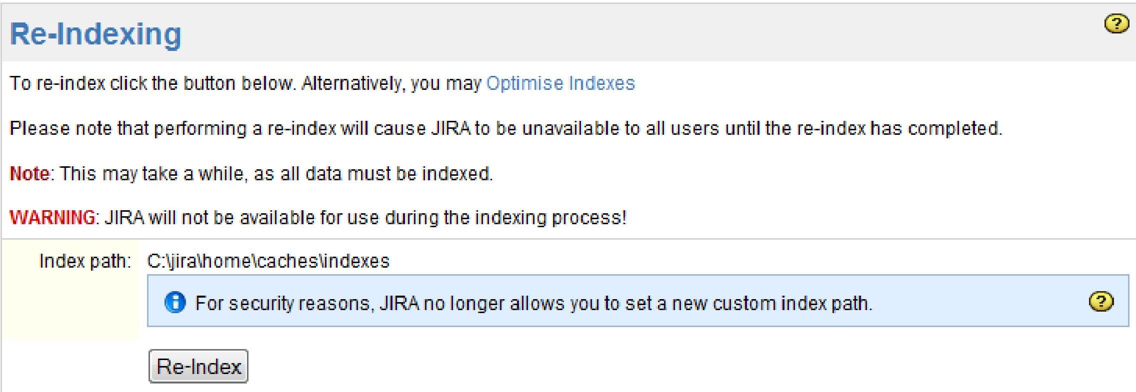
Search Indexing

In order to provide fast searching, JIRA creates an index of the text entered into issue fields. This index is stored on the file system, and updated whenever issue text is added or modified. It is sometimes necessary to regenerate this index manually; for instance if issues have been manually entered into the database, or the index has been lost or corrupted.

Indexing Administration

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu on the left, click the **'Indexing'** link.
4. This page allows you to:
    - **re-index your data** — whenever you re-index data, JIRA will clear any existing indexes and re-index all the current data from scratch. This may take a few minutes, depending on how many issues you have, and users will be unable to access JIRA during this time.
        - Note that JIRA by default schedules a re-index to run every night at midnight, through the use of Services.
        - See also Re-Indexing after Major Configuration Changes.
    - **optimise your indexes** — by clicking the **Optimise Indexes** link to access this function.

Screenshot: Indexing JIRA



Choosing a custom Index Path:

If you upgraded JIRA with an XML backup from a JIRA version prior to 4.2 and used a custom directory for your index path, you can choose between using this custom directory (which cannot be edited) or the default directory for your index path location. However, once you switch to using the default directory, you can no longer choose the custom directory option.

(The default directory location is the `caches/indexes` subdirectory of the JIRA home directory.)

Re-Indexing after Major Configuration Changes

Once issues have been created, modifying the configuration of your JIRA instance can result in the search index becoming out-of-sync with JIRA's configuration. Configuration details such as the following can affect the search index:

- Field Configuration Schemes
- Custom Fields
- Plugins
- Time Tracking

If you make changes to any of these areas of configuration, you might see the following message in your Administration view:

```
USERFULLNAME made configuration changes to 'SECTION' at TIME. It is recommended that you perform a
re-index. It is recommended that you perform a re-index. For more information, please click the
Help icon.
To perform the re-index now, please go to the 'Indexing' section.
Note: So that you only have to re-index once, you may wish to  complete any other configuration
changes before performing the re-index.
```

All users that have access to the Administration Tab will see this message (JIRA Administrators, System Administrators, Project Administrators). The above message means that configuration changes have been made to JIRA, but have not yet been reflected in the search index. Until JIRA's search index has been rebuilt, it is possible that some search queries from JIRA will return incorrect results. For example:

- If a plugin containing a custom field is enabled after being disabled, search queries which specify that the custom field should be empty will return *no issues* instead of *all issues*.
- If a Field Configuration is modified by altering the visibility of a particular field, search queries which specify that field may also return

erroneous results (depending on which field is being modified and what query is being executed).
- etc

The way to resolve the discrepancy is to rebuild JIRA's search index . This can take anywhere from seconds to hours, depending on the number of issues and comments in your JIRA instance. While re-indexing is taking place, your instance will be unavailable to all users. For these reasons, it is recommended that you:

- Make all your necessary configuration changes in one go before starting the re-index process; and
- Start the re-index process in a time period of low activity for your instance.

Using robots.txt to hide from Search Engines

The robots.txt protocol is used to tell search engines (Google, MSN, etc) which parts of a website should not be crawled.

For JIRA instances where non-logged-in users are able to view issues, a robots.txt file is useful for preventing unnecessary crawling of the Issue Navigator views (and unnecessary load on your JIRA server).

Editing robots.txt

JIRA (version 3.7 and later) installs the following `robots.txt` file at the root of the JIRA webapp:

```
# robots.txt for JIRA
# You may specify URLs in this file that will not be crawled by search engines (Google, MSN, etc)
#
# By default, all SearchRequestViews in the IssueNavigator (e.g.: Word, XML, RSS, etc) and all
IssueViews
# (XML, Printable and Word) are excluded by the /sr/ and /si/ directives below.

User-agent: *
Disallow: /sr/
Disallow: /si/
```

Alternatively, if you already have a `robots.txt` file, simply edit it and add **`Disallow: /sr/`** and **`Disallow: /si/`**.

Publishing robots.txt

The `robots.txt` file needs to be published at the root of your JIRA internet domain, e.g. **`jira.mycompany.com/robots.txt`**.

> If your JIRA instance is published at **`jira.mycompany.com/jira`**, change the contents of the file to `Disallow: /jira/sr/` and `Disallow: /jira/sr/`. However, you still need to put `robots.txt` file in the root directory, i.e. `jira.mycompany.com/robots.txt` (not `jira.mycompany.com/jira/robots.txt`).

Updating your JIRA License Details

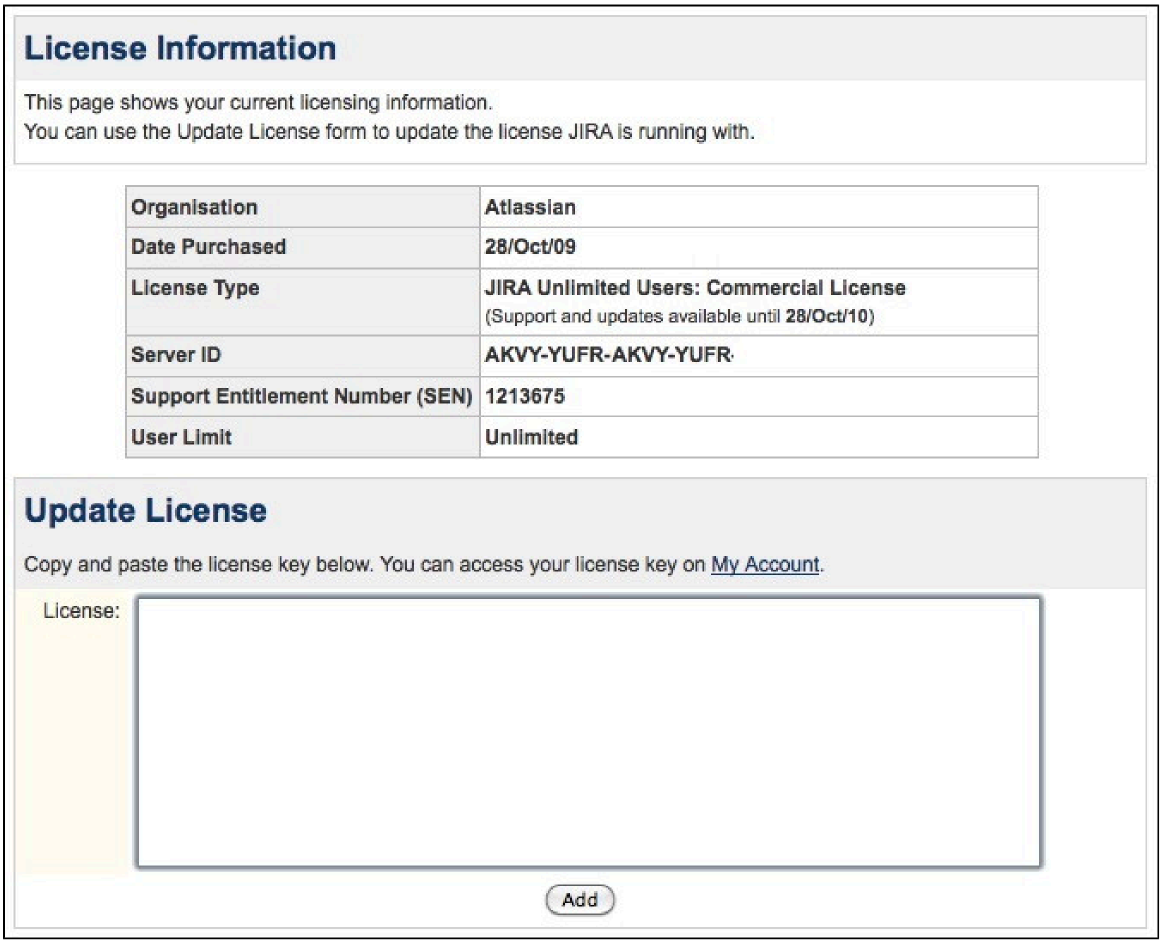
When you upgrade or renew your JIRA license, you will receive a new license key. You will need to update your JIRA server with the new license key.

> You can access your license key via http://my.atlassian.com

To update your JIRA license key,

1. Log in to JIRA as a user with the **'JIRA System Administrators'** global permission.
2. Click the '**Administration**' link in the top navigation bar.
3. Click the '**License Details**' link in the left navigation column (under '**System**').
4. This will display your existing JIRA license details, and an empty box called '**Update License**'. Paste your new license into this box.
5. Click the '**Add**' button to update the JIRA installation with the new license.

Screenshot : License Details



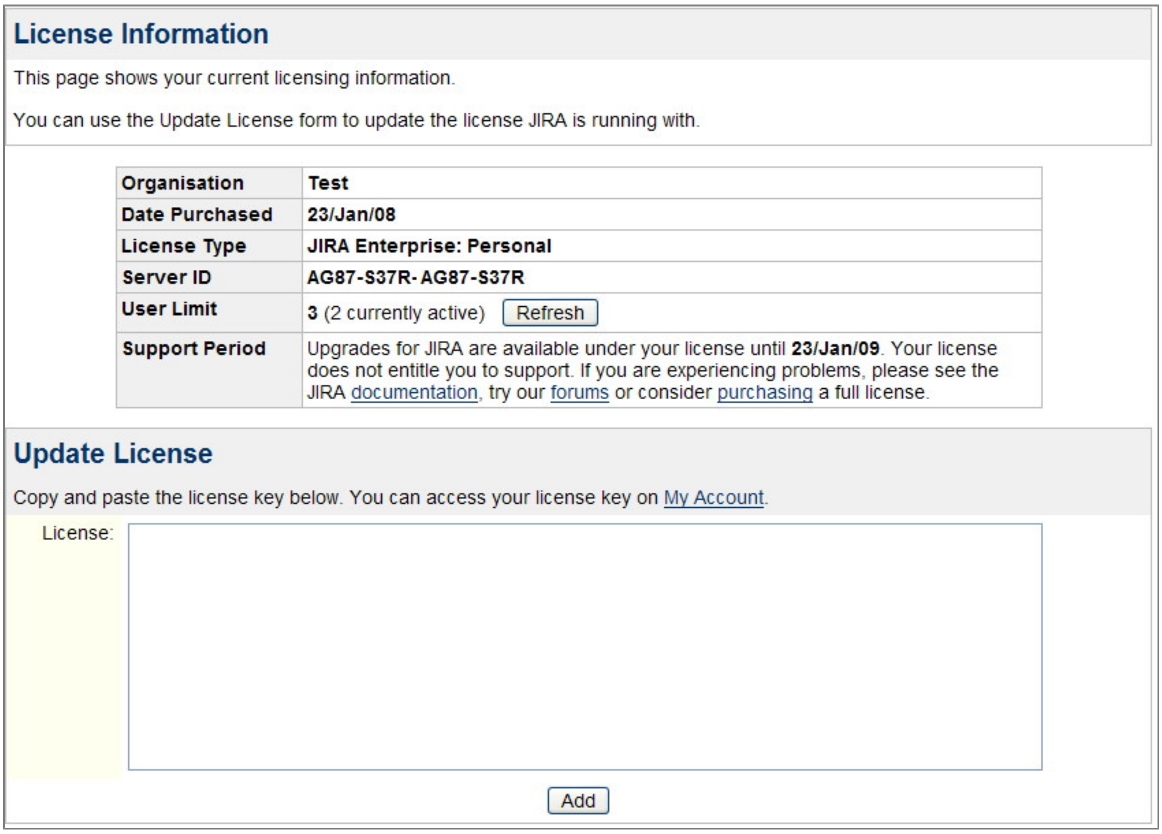
Have a user-based licence?

If you have a user-based (e.g. starter) license, then the user limit of your license will be displayed on the '**License Details**' page. This field is periodically refreshed, but you can retrieve the latest user limit by clicking the '**Refresh**' button.

Need more information about licensing?

- Want to find out more about **starter licenses**? Please see the Starter Licenses page.
- **Other licensing questions**? Please see the Licensing FAQ.

Screenshot : License Details



Viewing your System Information

JIRA provides you with detailed information about your system configuration, as described in the table below. This information can be useful when modifying, troubleshooting or upgrading your system.

Viewing your JIRA System Information

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu on the left, click the **'System Info'** link.
4. The **'System Info'** page will display, containing the information detailed below:
    - Warnings
    - System Info
    - Java VM Memory Statistics
    - JIRA Info
    - License Info
    - Configuration Info
    - Database Statistics
    - File Paths
    - Listeners
    - Services
    - Plugins
    - System Properties
    - Trusted Applications

Warnings

Any warnings about known issues with your configuration will be displayed here.

System Info

Setting	Description
Base URL	The base URL of this JIRA installation. It is used in outgoing email notifications as the prefix for links to JIRA issues. It can be changed as described in Configuring JIRA Options.
System Date	The JIRA server's system date.
System Time	The JIRA server's system time.

Current Working Directory	For a description of the JIRA Working Directory, please see Important Directories and Files.
Java Version	The JIRA server's Java version.
Java Vendor	The JIRA server's Java vendor.
JVM Version	The JIRA server's JVM version.
JVM Vendor	The JIRA server's JVM version.
JVM Implementation Version	The JIRA server's JVM implementation version.
Java Runtime	The JIRA server's Java runtime environment.
Java VM	The JIRA server's Java Virtual Machine.
User Name	The operating system login name which JIRA runs under.
User Timezone	The JIRA server's timezone.
User Locale	The JIRA server's locale. Unless the default language is modified in JIRA's General Configuration, the User Locale will dictate the default language.
System Encoding	The JIRA server's system encoding.
Operating System	The JIRA server's operating system.
OS Architecture	The JIRA server's operating system architecture (e.g. i386).
Application Server Container	The application server in which your JIRA instance is running (see Supported Platforms for a list of supported application servers).
Database type	The type of database to which your JIRA instance is connected (see Supported Platforms for a list of supported databases).
Database JNDI address	The JNDI address of the database to which your JIRA instance is connected. (For more details, see Connecting JIRA to a Database.)
Database URL	The URL of the database to which your JIRA instance is connected. (For more details, see Connecting JIRA to a Database.)
Database version	The version of the database to which your JIRA instance is connected (see Supported Platforms for a list of supported database versions).
Database driver	The driver which your JIRA instance is using to connect to its database. (For more details, see Connecting JIRA to a Database.)
External user management	'**ON**' / '**OFF**' indicates whether JIRA's users are being managed externally or internally to JIRA (e.g. via Crowd).
Crowd integration	'**YES**' / '**NO**' indicates whether Atlassian's Crowd identity management system has been integrated with this instance of JIRA. For more information please see the chapter titled 'Integrating JIRA with Crowd' in the Crowd documentation.
JVM Input Arguments	A list of any variables that are being passed to your application server when it starts up. For more information, see Setting Properties and Options on Startup.
Modified Files	A list of any files in your JIRA installation that have been modified as part installation or customisation of JIRA.
Removed Files	A list of any files that have beeen removed from your JIRA installation.

Java VM Memory Statistics

Java applications, such as JIRA, run in a "Java virtual machine" (JVM) instead of directly within an operating system. When started, the Java virtual machine is allocated a certain amount of memory, which it makes available to applications like JIRA. The following table shows the JVM memory data for your JIRA instance.

Setting	Description
Total Memory	The total amount of memory allocated to the JVM that is available to this instance of JIRA. For more details, see Increasing JIRA Memory.

Free Memory	The amount of free JVM memory currently available to this instance of JIRA.
Used Memory	The amount of JVM memory currently being used by this instance of JIRA.
Total PermGen Memory	The total amount of PermGen (Permanent Generation) memory available to this instance of JIRA.
Free PermGen Memory	The amount of free PermGen (Permanent Generation) memory currently available to this instance of JIRA.
Used PermGen Memory	The amount of PermGen (Permanent Generation) memory currently being used by this instance of JIRA.
Memory Graph	A bar graph showing the available versus free JVM memory. You can click the '**Force garbage collection**' link to start a clean-up. Note that **this is generally not needed (even if the graph shows 100% utilisation)** unless you want to examine JIRA's baseline heap usage.
PermGen Memory Graph	A bar graph showing the available versus free PermGen (Permanent Generation) memory.
Non-Heap Memory Graph (includes PermGen)	A bar graph showing the available versus free non-heap memory (including PermGen memory).

You can click the '**More Information...**' link at the bottom of this table to view an additional section titled '**Memory Pool Info**' (which lists detailed information about the various parts of memory that the Java virtual machine uses to store its data, and is generally only useful to Atlassian's support engineers.)

JIRA Info

Setting	Description
Uptime	The period of time since your JIRA instance was last started.
Edition	The 'edition' of JIRA you are running. (Note: from JIRA 4.0 onwards, only '**Enterprise**' edition is available. Prior to JIRA 4.0, there were three editions: '**Standard**', '**Professional**' and '**Enterprise**'.)
Version	The version of JIRA you are running. (Note: for the latest version, please see JIRA Releases.)
Build Number	The build number of your JIRA version. This is generally only useful to Atlassian's support engineers.
Build Date	The date on which your JIRA version was built. This is generally only useful to Atlassian's support engineers.
Atlassian Partner	Indicates whether your distribution of JIRA was built by an Atlassian partner company. Blank indicates that it was built directly by Atlassian.
Installation Type	Indicates whether JIRA has been installed as a '**Standalone**' application or as an '**EAR/WAR**' application.
Server ID	This number is calculated automatically by JIRA, based on your license number.
Last Upgrade	The time at which your JIRA installation was last upgraded, and from which version it was upgraded from (if applicable). Click the '**More Information...**' link to see a list of all upgrades that have been performed on your JIRA system from version 4.1 onwards.
Installed Languages	A list of all language packs available within the JIRA system. (Note: to install additional languages, see Translating JIRA.)
Default Language	The language used throughout the JIRA interface. To change the default language, see Configuring JIRA Options. Note that users can override the default language by using the **Language** setting in their user profile.

License Info

Note: to edit your license details, please see Updating your JIRA License Details. Note that you will require the **'JIRA System Administrators'** global permission.

Setting	Description
Date Purchased	The date on which this system's JIRA license was originally purchased. Note: you can verify this information by visiting http://my.atlassian.com
License Type	For information about the different types of JIRA licences, please see http://www.atlassian.com/software/jira/licensing.jsp
Maintenance Period End Date	For information about JIRA support and maintenance, please see http://www.atlassian.com/software/jira/licensing.jsp

Maintenance Status	For information about JIRA support and maintenance, please see http://www.atlassian.com/software/jira/licensing.jsp
Support Entitlement Number (SEN)	For information about JIRA support and maintenance, please see http://www.atlassian.com/software/jira/licensing.jsp

Configuration Info

Setting	Description
Attachments Enabled	'**true**' / '**false**' indicates whether or not users can attach files and screenshots to issues in this JIRA system (subject to project permissions). For more information, see Configuring File Attachments.
Issue Voting Enabled	'**true**' / '**false**' indicates whether or not users can vote on issues in this JIRA system (subject to project permissions). For more information, see Configuring JIRA Options.
Issue Watching Enabled	'**true**' / '**false**' indicates whether or not users can watch issues in this JIRA system (subject to project permissions). For more information, see Configuring JIRA Options.
Unassigned Issues Enabled	'**true**' / '**false**' indicates whether or not issues can be 'unassigned' (i.e. assigned to noone) in this JIRA system. For more information, see Configuring JIRA Options.
Sub-Tasks Enabled	'**true**' / '**false**' indicates whether or not 'sub-task' issues can be created in this JIRA system. For more information, see Configuring Sub-tasks.
Issue Linking Enabled	'**true**' / '**false**' indicates whether or not issues can be linked to each other within this JIRA system. For more information, see Configuring Issue Linking.
Time Tracking Enabled	'**true**' / '**false**' indicates whether or not time (work) can be logged on issues in this JIRA system. For more information, see Configuring Time Tracking.
Time Tracking Hours Per Day	The number of hours per working day for which work that can be logged on issues in this JIRA system. For more information, see Configuring Time Tracking.
Time Tracking Days Per Week	The number of days per week for which work that can be logged on issues in this JIRA system. For more information, see Configuring Time Tracking.

Database Statistics

The information in this section can help determine how much resource (e.g. memory) your JIRA system requires.

Setting	Description
Issues	The number of issues that have been created in this JIRA system.
Projects	The number of projects that have been created in this JIRA system.
Custom Fields	The number of custom fields that have been created in this JIRA system.
Workflows	The number of workflows that have been created in this JIRA system.
Users	The number of user IDs that have been created in this JIRA system.
Groups	The number of groups that have been created in this JIRA system.

File Paths

Setting	Description
Location of JIRA Home	The path to your JIRA Home Directory. For information about changing the location, see Setting your JIRA Home Directory.]
Location of entityengine.xml	The path to your Entity Engine. For database-specific information about configuring your `entityengine.xml` file, see Connecting JIRA to a Database.
Location of atlassian-jira.log	The path to the JIRA log file. (Note that, if you are requesting support, the support engineers will generally need your application server log file as well as your JIRA log file.) For information about changing the logging level, see Logging and Profiling; note that you will require the **'JIRA System Administrators'** global permission.
Location of indexes	The path to your JIRA search indexes (not your database indexes). For information about moving the indexes, please see Search Indexing]; note that you will require the **'JIRA System Administrators'** global permission.

Listeners

This section lists all the listeners that are installed in this JIRA system. For more information, please see Listeners. Note that you will require the **'JIRA System Administrators'** global permission in order to register a listener.

Services

This section lists all the services that are installed in this JIRA system. For more information, please see Services. Note that you will require the **'JIRA System Administrators'** global permission in order to register a service.

Plugins

This section lists all plugins that are installed in this JIRA system. For more information, please see Managing JIRA's Plugins.

System Properties

The information in this section is specific to the application server and Java version you are using, and is generally only useful to Atlassian's support engineers.

Trusted Applications

This section lists all 'trusted application' (i.e. applications that JIRA will allow to access specified functions on behalf of any user — without the user logging in to JIRA). To edit the trusted applications for this JIRA system, please see Configuring Trusted Applications. Note that you will require the **'JIRA System Administrators'** global permission.

Generating a Thread Dump

Occasionally, JIRA may appear to 'freeze' during execution of an operation. During these times, it is helpful to retrieve a **thread dump** — a log containing information about currently running threads and processes within the Java Virtual Machine. Taking thread-dumps is a non-destructive process that can be run on live systems. This document describes the steps necessary to retrieve a **thread dump.**

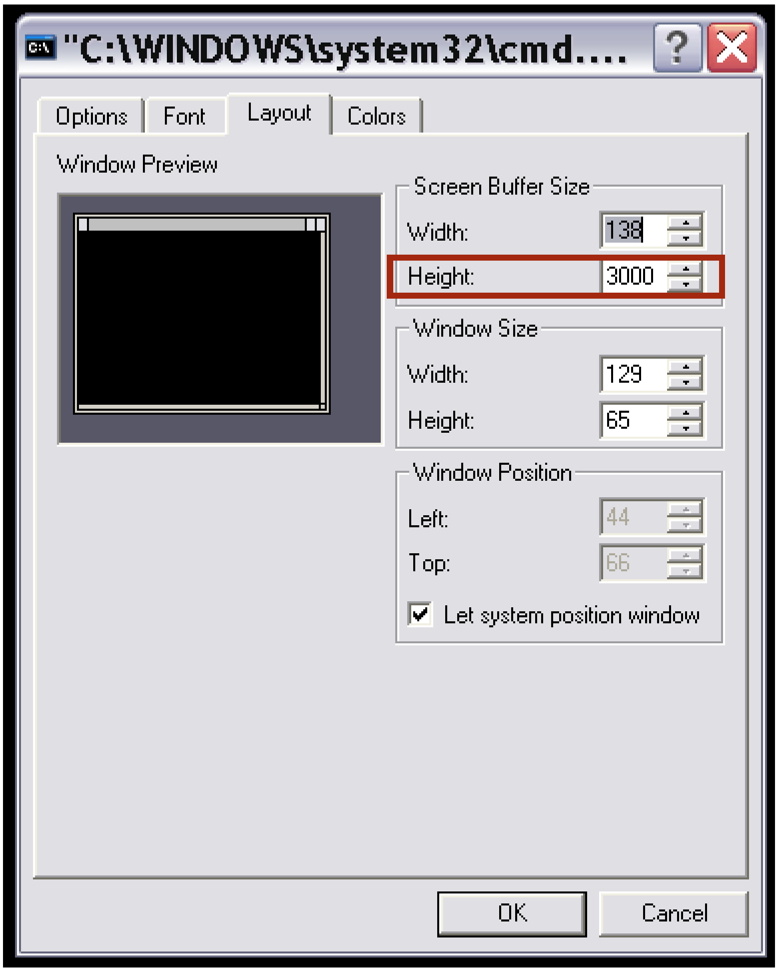
The steps necessary to retrieve the **thread dump** are dependant on the operating system JIRA is running in — please follow the appropriate steps:
On this page"

- Windows Environment
  - JIRA running from startup.bat
  - JIRA running as a Windows Service
- Linux/Unix/OS X Environment
  - Linux/Unix Command Line
  - Linux/Unix Alternative: Generating Thread Dumps using jstack
- Analysis Tools
  - TDA

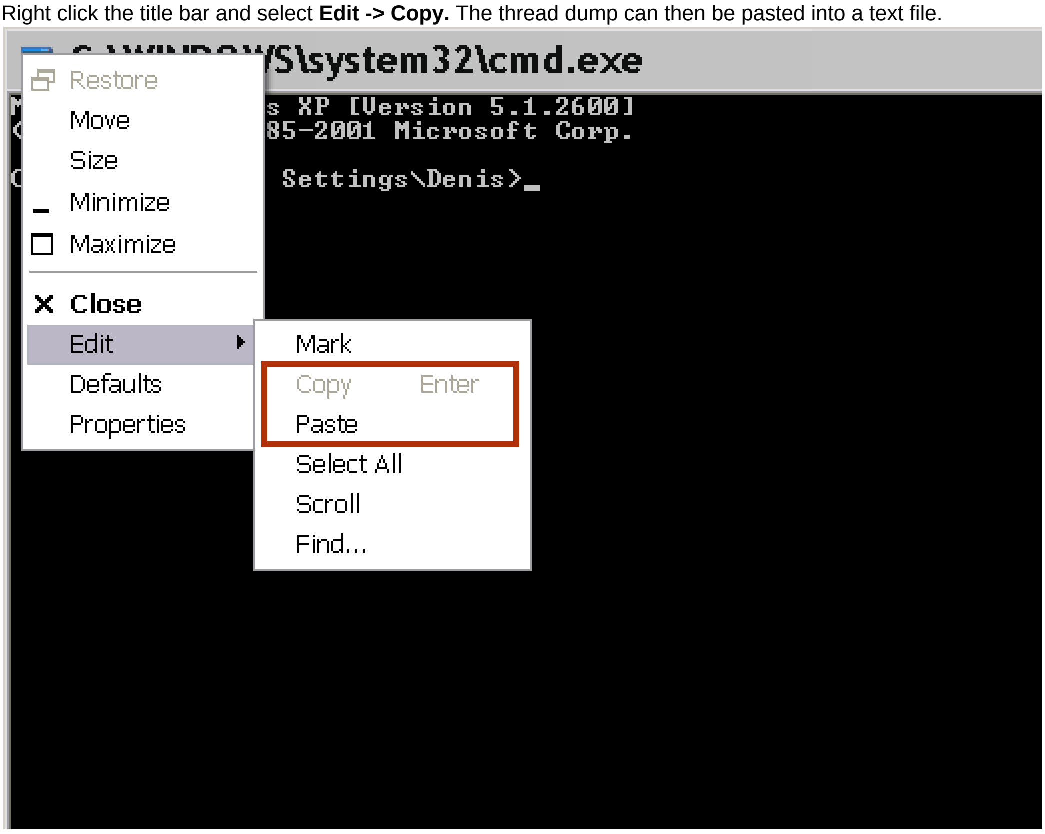
Windows Environment

JIRA running from startup.bat

1. In the **Command Console** window where JIRA is running, open the properties dialog box by right clicking on the title bar and select **"Properties".**
2. Select the **Layout** tab.
3. Under **Screen Buffer Size,** set the **Height** to **3000.**



4. Click **OK.**
5. With the same command console in focus, press **CTRL-BREAK.** This will output the thread dump to the command console.
6. Scroll back in the command console until you reach the line containing "Full thread dump".
7. Right click the title bar and select **Edit -> Mark.** Highlight the entire text of the thread dump.
8. Right click the title bar and select **Edit -> Copy.** The thread dump can then be pasted into a text file.



JIRA running as a Windows Service

1. Visit http://www.adaptj.com/root/main/download and click '**Launch**'.
2. Click '**Run**' for any security warnings.
3. Select '**Process -> Thread Dump**'.
4. Under **Process Id**, select the **'...'** button.
5. From the drop-down list, select the JIRA process. Users running JIRA Standalone should select the 'Java (Tomcat) ...' option. Users running JIRA EAR/WAR should select their application server process.
6. Click '**OK**' to capture the thread dump.
7. Save the output to a file, e.g. 'threaddump.log'

Linux/Unix/OS X Environment

Linux/Unix Command Line

1. Identify the **java** process that JIRA is running in. This can be achieved by running a command similar to:

```
ps -ef | grep java
```

   The process will appear similarly as follows:

```
keithb     910   873  1 17:01 pts/3    00:00:18 /usr/java/jdk/bin/java -Xms128m -Xmx256m
-Xms128m -Xmx256m -Djava.awt.headless=true
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
-Djava.awt.headless=true
-Djava.endorsed.dirs=/tmp/atlassian-jira-enterprise-3.6-standalone/common/endorsed
-classpath :
```

2. In order to retrieve the thread dump, execute the command

```
kill -3 <pid>
```

   where **pid** is the process id — in this case, 910.
3. The thread dump is logged to the console in which JIRA was started.

Linux/Unix Alternative: Generating Thread Dumps using jstack

If you have trouble using kill -3 <pid> to obtain a thread dump, try using jstack a java utility that will output stack traces of Java threads for a given process.

1. Identify the **java** process that JIRA is running in. This can be achieved by running a command similar to:

```
ps -ef | grep java
```

2. The process will appear similarly as follows:

```
adam 22668 0.3 14.9 1691788 903928 ? Sl Jan27 9:36 /usr/lib/jvm/java-6-sun-1.6.0.14/bin/java
-Djava.util.logging.config.file=/home/adam/Products/installs/atlassian-jira-enterprise-4.0.1-s
-XX:MaxPermSize=256m -Xms128m -Xmx1048m -Djava.awt.headless=true -Datlassian.standalone=JIRA
-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true
-Dmail.mime.decodeparameters=true -Datlassian.mail.senddisabled=false
-Datlassian.mail.fetchdisabled=false
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
-Djava.endorsed.dirs=/home/adam/Products/installs/atlassian-jira-enterprise-4.0.1-standalone/c
-classpath
/home/adam/Products/installs/atlassian-jira-enterprise-4.0.1-standalone/bin/bootstrap.jar
-Dcatalina.base=/home/adam/Products/installs/atlassian-jira-enterprise-4.0.1-standalone
-Dcatalina.home=/home/adam/Products/installs/atlassian-jira-enterprise-4.0.1-standalone
-Djava.io.tmpdir=/home/adam/Products/installs/atlassian-jira-enterprise-4.0.1-standalone/temp
org.apache.catalina.startup.Bootstrap start
```

3. Run jstack <pid> to Capture a Single Thread Dump
   This command will take one thread dump of the process id <pid>, in this case the pid is 22668, and log output to the file JIRAthreaddump.txt

```
adam@jiratrack:~$ jstack 22668 > JIRAthreaddump.txt
```

4. Take Multiple Thread Dumps
   Typically you'll want to take several dumps about 10 seconds apart, in which case you can generate several dumps and output the stack traces to a single file as follows:

```
adam@jiratrack:~$ jstack 22668 >> JIRAthreaddump.txt
adam@jiratrack:~$ jstack 22668 >> JIRAthreaddump.txt
adam@jiratrack:~$ jstack 22668 >> JIRAthreaddump.txt
```

Analysis Tools

Try TDA or Samurai to inspect your thread dump.

TDA

1. Download TDA
2. CD to the directory where the JAR exists
3. Run:

```
java -jar -Xmx512M ~/tda-bin-1.6/tda.jar
```

4. Open your catalina.out file, containing the thread dump

Check the known thread dump knowledge base articles:

Page: Diagnosing Performance Issues
Page: Searching, Indexing, and Filters Troubleshooting
Page: JIRA Deadlocks when Running Tomcat 6.0.24
Page: JIRA Crashes Due to 'OutOfMemoryError Java heap space'
Page: OutOfMemory or Poor Performance due to XML View of a Filter
Page: Poor Performance Due to Limited Database Connection Pooling

Performance Testing Scripts

This page contains scripts and hints for testing usage load on your JIRA installation.

Contents

- Introduction
- Prerequisites
- Quick, just tell me how to run these tests!
- Performance Tests
  - Setup Test
    - Configuration Control
    - User Control
    - Project Control
    - Issue Control
    - Test Output
    - Result Logs
  - Fixed Load Test
    - Configuration Control
    - Edit Issue
    - User Actions
    - Browse Issues and Projects
    - RSS
    - Create Issues
    - Search For Issues
    - Test Output
    - Result Logs

Introduction

When setting up a new JIRA installation, it is useful to understand how it will perform under your anticipated load before users begin accessing it. Scripts that generate 'request' (or usage) load are provided in our public Maven repository (link below). Using these scripts, you can find out where you may need to consider improving your configuration to remove bottlenecks.

While this kind of testing is not an exact science, the tools and processes described here are intended to be straightforward and configurable, and provide you with an extensible way to assess load testing.

The performance tests described on this page utilise JMeter. While it is not necessary to know JMeter, briefly reading through the JMeter documentation is recommended as it may help you resolve any JMeter-specific issues.

It is rarely the case that these scripts will perform representative testing for you 'out of the box'. However, it should be possible to build an appropriate load test by configuring or extending these scripts.

> **Load testing scripts should not be used on a production JIRA installation!**
>
> While we recommend using a copy of your production data for testing usage load, the load testing scripts below *will modify data within the targeted JIRA installation!* Hence, these scripts *should not be used on a production JIRA installation*. Instead, use a copy of your production JIRA data on a *test* JIRA installation.
>
> If you do run these test scripts against your production JIRA installation, you will be responsible for any data loss and backup recovery!

Likewise, when making changes to your JIRA installation to remove performance bottlenecks, it is useful to assess the impact of these changes in a test JIRA installation before implementing them in production.

Prerequisites

You will need the following:

- A JIRA installation, set up and running with an administrator user. The scripts assume that the username/password combination of this user is 'admin'/'admin'.
- It is recommended that you test with a production quality database, such as one listed on the Supported Platforms page. Do not use HSQLDB.
- Apache JMeter (currently version 2.3.4). If you intend to do high load testing, please use our modified version of JMeter instead (which requires Java 1.6).
- The load testing scripts and resources which are available in our public Maven repository — Please choose the version that most closely matches your JIRA version and download the ZIP or Gzip file in that directory. If in doubt, download the ZIP file archive.

> Users have reported problems using the Windows built-in unzip utility to extract these archives. If you encounter such a problem, please use a third party file archiving and extraction program (for example, 7-Zip) to extract these performance tests.

Quick, just tell me how to run these tests!

If you do not want to read the rest of this document, here are the main points:

1. Create the **setup test** data:

```
<jmeter location>/bin/jmeter -n -t jmeter-test-setup.jmx -Jadmin.user=<username>
-Jadmin.pass=<password>
```

2. Run the **fixed load test**:

```
<jmeter location>/bin/jmeter -n -t jmeter-test-fixedload.jmx
```

The remainder of this document is just an elaboration of those two steps.

> For information on how to use JMeter please refer to the JMeter documentation.

Performance Tests

JIRA performance tests are made up of two parts:

- **Setup test** — runs first and prepares the JIRA installation for a subsequent **fixed load test**
- **Fixed load test** — simulates a number of users accessing the JIRA installation.

Setup Test

The **setup test** is responsible for:

- Creating projects
- Creating users
- Creating and commenting on (and optionally resolving) issues.

Running the setup test:

After extracting the performance test zip file, change into the performanceTest directory. From this directory, run the performance setup test:

```
<jmeter location>/bin/jmeter -n -t jmeter-test-setup.jmx -Jadmin.user=<username>
-Jadmin.pass=<password>
```

where <jmeter.location> is the base directory of JMeter

If you omit the -n switch, JMeter will run as a GUI. You may then start the test from within the GUI.

As seen above with the admin.user and admin.pass parameters, JMeter supports -Jparameter=value command arguments in order to control execution. The following parameters control the setup test execution:

Configuration Control

Parameter	Default	Explanation
jira.host	localhost	The hostname or address of the JIRA installation.
jira.port	8000	The network port that the JIRA installation is running on.
jira.context	/	JIRA webapp context.
admin.user	admin	Administrator username.
admin.pass	admin	Administrator password.
script.base	.	The location of the performance tests. This should only be set if you run the tests from outside the scripts directory.
remove.data	false	Running the script with this enabled will remove the users and projects created by the test.

User Control

Parameter	Default	Explanation
create.users.enable	true	Create users in the target JIRA installation. Use **false** if you already have the users created elsewhere.
browseissue.max	250	The number of users to be created for browsing the JIRA installation (aka "browseissue" users).
createissue.max	250	The number of users to be created for creating issues (aka "createissue" users).
editissue.max	250	The number of users to be created for editing issues (aka "editissue" users).
search.max	250	The number of users to be created for searching issues (aka "search" users).
useraction.max	250	The number of users to be created for browsing user information (aka "useraction" users).
browseissue.groupname	none	The group to which "browseissue" users will be placed. Use **none** for no group.
createissue.groupname	jira-developers	The group to which "createissue" users will be placed. Use **none** for no group.
editissue.groupname	jira-developers	The group to which "editissue" users will be placed. Use **none** for no group.
search.groupname	none	The group to which "search" users will be placed. Use **none** for no group.
useraction.groupname	jira-developers	The group to which "useraction" users will be placed. Use **none** for no group.

Project Control

Parameter	Default	Explanation
create.projects.enable	true	Create projects. Use **false** if you want to use existing projects (in existing data).
project.max	20	The number of projects to create in the system.

Issue Control

Parameter	Default	Explanation
create.issues.enable	true	Creates issues in the target JIRA installation. Use **false** if you do not want the test to create sample issues.

issue.max	3000	The number of issues to be created.
issue.comment.enable	true	Controls whether or not comments are added to issues.
issue.comment.max	10	If `issue.comment.enable` is true, then the number of actual comments created on an issue is chosen randomly between 0 and this value.
issue.close	true	Controls whether or not issues will be closed automatically after being created.
issue.close.percentage	60	If `issue.close` is enabled, then this value defines the percentage of issues closed.
issue.setupload.threads	10	The number of threads used for creating the issues.
issue.setupload.pause	50	The amount of time (in milliseconds) for which a simulated user will 'sleep' between each request during issue creation.
resource.dir	resources	The directory which contains the CSV data resources.

Test Output

Once you have chosen your target settings, run JMeter and you should get output similar to the following:

```
jmeter -n -t jmeter-test-setup.jmx
Created the tree successfully using jmeter-test-setup.jmx
Starting the test @ Mon Oct 26 23:53:28 CDT 2009 (1256619208435)
Generate Summary Results +   931 in  31.3s =   29.7/s Avg:    26 Min:    13 Max:  3256 Err:     0
(0.00%)
Generate Summary Results +  2948 in 180.0s =   16.4/s Avg:    31 Min:     8 Max:  1162 Err:     0
(0.00%)
Generate Summary Results =  3879 in 211.4s =   18.3/s Avg:    29 Min:     8 Max:  3256 Err:     0
(0.00%)
Generate Summary Results +  5048 in 179.9s =   28.1/s Avg:    44 Min:     7 Max:   936 Err:     0
(0.00%)
Generate Summary Results =  8927 in 391.4s =   22.8/s Avg:    37 Min:     7 Max:  3256 Err:     0
(0.00%)
Generate Summary Results +  3114 in 180.1s =   17.3/s Avg:    41 Min:     7 Max:   805 Err:     0
(0.00%)
Generate Summary Results = 12041 in 571.3s =   21.1/s Avg:    38 Min:     7 Max:  3256 Err:     0
(0.00%)
Generate Summary Results +  4956 in 179.8s =   27.6/s Avg:    45 Min:     7 Max:  1844 Err:     0
(0.00%)
Generate Summary Results = 16997 in 751.4s =   22.6/s Avg:    40 Min:     7 Max:  3256 Err:     0
(0.00%)
Generate Summary Results +   313 in  17.1s =   18.3/s Avg:    37 Min:     7 Max:   165 Err:     0
(0.00%)
Generate Summary Results = 17310 in 768.5s =   22.5/s Avg:    40 Min:     7 Max:  3256 Err:     0
(0.00%)
Tidying up ...    @ Tue Oct 27 00:06:17 CDT 2009 (1256619977181)
... end of run
```

This output will be updated every 3 minutes, showing the most recent activity as well as a summary for the whole test.

Result Logs

In addition to this summary data, which is output on the command line, log files are created for both the successful (`jmeter-results-setup.jtl`) and unsuccessful (`jmeter-assertions-setup.jtl`) results. These log files are saved in JTL format (which is based on XML). There are a number of parsers which will generate graphs from these log files. For more information, see the JMeter wiki page on Log Analysis.

Fixed Load Test

Once the **setup test** has successfully run, the **fixed load test** can be run. This test will simulate a number of users accessing the JIRA installation.

This test has a number of parameters for tweaking the behaviour if the test. By default, the test has the following behaviour and strategy:

- Several groups of users, all running concurrently for a fixed amount of time, each with a small delay between requests.
  - 'Edit Issue' (editissue) users browse a project and then attempt to find an issue. They will then comment, edit or change the workflow of that issue.
  - 'User Action' (useraction) users create filters, view watches and votes.
  - 'Browse Issue' (browseissue) users browse projects and issues.
  - 'RSS' users browse project and then periodically fetch the RSS feed for that project.
  - 'Create Issues' (createissue) users add new issues to the instance.
  - 'Search Issues' (search) users search for issues using the quick search textbox.

There is **no execution of JavaScript** by the JMeter client. JavaScript performance will depend on several factors such as your browser and workstation speed. JMeter does not measure this.

Running the fixed load test:

```
<jmeter location>/bin/jmeter -n -t jmeter-test-fixedload.jmx
```

As with the setup test (above), this command will run the **fixed load test** with the default values. Similarly, it is possible to control the execution of JMeter with `-J` parameters. The fixed load test has the following available parameters:

Configuration Control

Parameter	Default	Explanation
jira.host	localhost	The hostname or address of the JIRA installation.
jira.port	8000	The network port that the JIRA installation is running on.
jira.context	/	JIRA webapp context.
admin.user	admin	Administrator username.
admin.pass	admin	Administrator password.
script.base	.	The location of the performance tests. This should only be set if you run the tests from outside the `scripts` directory.
script.runtime	1800	The amount of time to run for (in seconds).
resource.dir	resources	The subdirectory which contains the resource CSV files. Replace this if you wish to customise the backend data.

Edit Issue

Parameter	Default	Explanation
editissue.threads	5	The number of simultaneous 'Edit Issue' users to simulate.
editissue.pause	15000	The pause between each 'Edit Issue' user request (in milliseconds).
workflow.matchname	(Close | Resolve)	A regular expression to match the workflow to action.
editworkflow.percentage	20	The percentage of 'Edit Issue' user requests that will attempt to change the issue workflow.
addcomment.percentage	60	The percentage of 'Edit Issue' user requests that will attempt to add a comment to an issue.
editissue.percentage	20	The percentage of 'Edit Issue' user requests that will attempt to edit an issue.
editissue.issuestoown	5	The number of issues the test attempts to assign to an 'Edit Issue' user.

User Actions

Parameter	Default	Explanation
useraction.threads	1	The number of simultaneous 'User Action' users to simulate.
useraction.pause	40000	The pause between each 'User Action' user request (in milliseconds).
createfilter.percentage	10	The percentage of 'User Action' user requests that will attempt to create a filter.
viewwatches.percentage	10	The percentage of 'User Action' user requests that will attempt to 'view watches'.
viewvotes.percentage	10	The percentage of 'User Action' user requests that will attempt to view votes.

Browse Issues and Projects

Parameter	Default	Explanation
browseissue.threads	40	The number of simultaneous 'Browse Issue' users to simulate.
browseissue.pause	3000	The pause between each 'Browse Issue' user request (in milliseconds).
userprofile.percentage	10	The percentage of 'Browse Issue' user requests that will attempt to browse a user profile.
browsedashboard.percentage	20	The percentage of 'Browse Issue' user requests that will attempt to browse the dashboard.

dashboard.category	allprojects	The project category for project status gadget requests.

RSS

Parameter	Default	Explanation
browserss.threads	10	The number of simultaneous 'RSS' users to simulate.
browserss.pause	60000	The pause between each 'RSS' user request (in milliseconds).

Create Issues

Parameter	Default	Explanation
issue.create.threads	3	The number of simultaneous 'Create Issue' users to simulate.
issue.create.pause	15000	The pause between each 'Create Issue' user request (in milliseconds).
issue.comment.max	2	The maximum number of comments on an issue. The actual number is chosen randomly between 0 and this value.

Search For Issues

Parameter	Default	Explanation
search.threads	2	The number of simultaneous 'Search' users to simulate.
search.pause	15000	The pause between each 'Search' user request (in milliseconds).

Test Output

Once you have chosen your target settings, run JMeter and you should get output similar to the following:

```
jmeter -n -t jmeter-test-fixedload.jmx
Created the tree successfully using jmeter-test-fixedload.jmx
Starting the test @ Wed Oct 28 01:13:22 CDT 2009 (1256710402435)
Waiting for possible shutdown message on port 4445
Generate Summary Results +   568 in  97.9s =    5.8/s Avg:    62 Min:     1 Max:  1534 Err:     0
(0.00%)
Generate Summary Results +  3861 in 179.4s =   21.5/s Avg:    39 Min:     0 Max:   494 Err:     0
(0.00%)
Generate Summary Results =  4429 in 277.4s =   16.0/s Avg:    42 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results +  7356 in 180.0s =   40.9/s Avg:    37 Min:     0 Max:   481 Err:     0
(0.00%)
Generate Summary Results = 11785 in 457.3s =   25.8/s Avg:    39 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results + 10841 in 180.1s =   60.2/s Avg:    38 Min:     0 Max:   995 Err:     0
(0.00%)
Generate Summary Results = 22626 in 637.4s =   35.5/s Avg:    39 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results + 11821 in 180.3s =   65.6/s Avg:    37 Min:     0 Max:   507 Err:     0
(0.00%)
Generate Summary Results = 34447 in 817.3s =   42.1/s Avg:    38 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results + 11904 in 180.9s =   65.8/s Avg:    38 Min:     0 Max:   658 Err:     0
(0.00%)
Generate Summary Results = 46351 in 997.4s =   46.5/s Avg:    38 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results + 11697 in 180.3s =   64.9/s Avg:    38 Min:     0 Max:   488 Err:     0
(0.00%)
Generate Summary Results = 58048 in 1177.4s=   49.3/s Avg:    38 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results + 11731 in 180.0s =   65.2/s Avg:    39 Min:     0 Max:   810 Err:     0
(0.00%)
Generate Summary Results = 69779 in 1357.4s=   51.4/s Avg:    38 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results + 11646 in 180.0s =   64.7/s Avg:    39 Min:     0 Max:   776 Err:     0
(0.00%)
Generate Summary Results = 81425 in 1537.4s=   53.0/s Avg:    38 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results + 11810 in 180.0s =   65.6/s Avg:    39 Min:     0 Max:   798 Err:     0
(0.00%)
Generate Summary Results = 93235 in 1717.3s=   54.3/s Avg:    38 Min:     0 Max:  1534 Err:     0
(0.00%)
Generate Summary Results +  5453 in 109.1s =   50.0/s Avg:    42 Min:     0 Max:   858 Err:     0
(0.00%)
Generate Summary Results = 98688 in 1826.4s=   54.0/s Avg:    39 Min:     0 Max:  1534 Err:     0
(0.00%)
Tidying up ...    @ Wed Oct 28 01:43:49 CDT 2009 (1256712229128)
... end of run
```

This output will be updated every 3 minutes, showing the most recent activity as well as a summary for the whole test.

Result Logs

As above, there will be output on the command line and log files will be created for both the successful (`jmeter-results-setup.jtl`) and unsuccessful (`jmeter-assertions-setup.jtl`) results. These log files are saved in the JTL format (based on XML). There are a number of parsers which will generate graphs from these logs files. For more information, see the JMeter wiki page on Log Analysis.

Finding the JIRA Support Entitlement Number (SEN)

There are three ways to find you Support Entitlement Number (SEN):

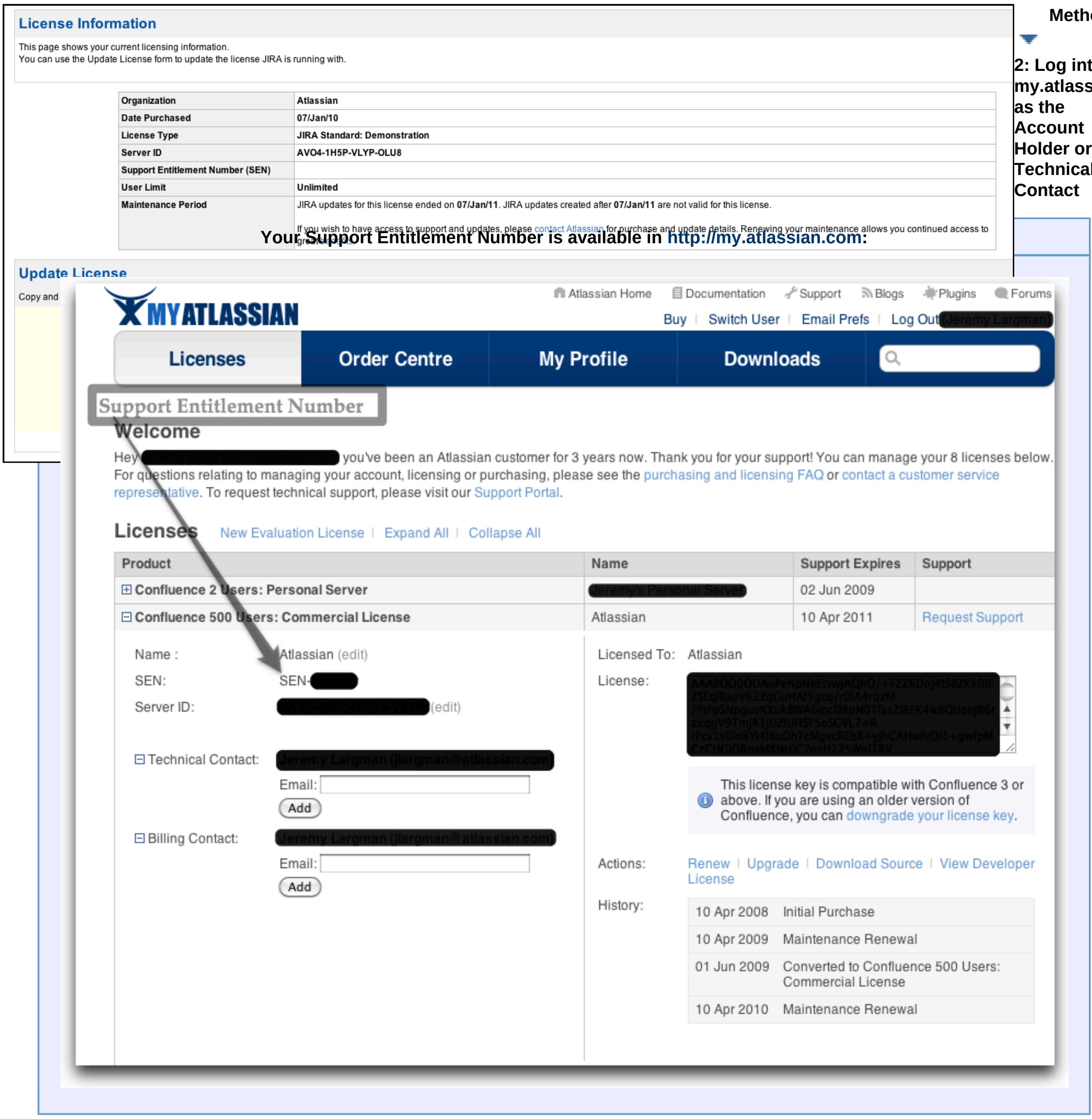
Method 1: Check in the JIRA Administration Interface

If you're using GreenHopper, the GreenHopper license appears above the JIRA one. The JIRA 'license details' link is towards the bottom of the list on the left hand side.

Select `Administration >> License Details`. The SEN is shown:

Method 2: Log into my.atlassian.c as the Account Holder or Technical Contact

Your Support Entitlement Number is available in http://my.atlassian.com:



Method 3: Atlassian Invoice

Your Support Entitlement Number (SEN) appears on the third page of your Atlassian Invoice.

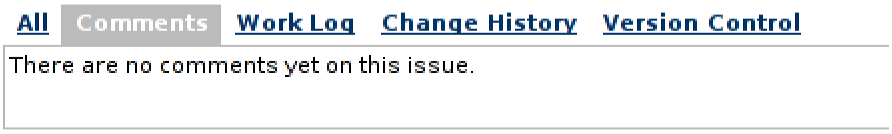
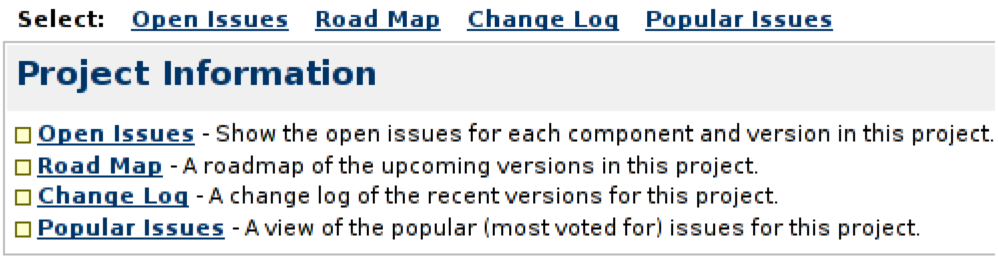
See Finding Your Support Entitlement Number in the support space for more general information about how Atlassian Support uses this number.

Appendix A - Extending JIRA

JIRA is very flexible, and has a number of extension points where JIRA's data can be queried or its functionality extended. You can also follow further instructions on Developing your Plugin using the Atlassian Plugin SDK.

> **JIRA Plugins**
> For information on installing and/or enabling existing plugins, please read the Managing JIRA's Plugins documentation.

Custom Field Types	JIRA comes with various custom field types defined. New types can be written and plugged into JIRA. See the Writing Custom Field Types Tutorial for more information.

User Formats	JIRA comes with many options to change the look and feel of features in the system. User formats are a feature that can be customised by plugins. You can write your own User Format plugin to change the display of user details in JIRA, e.g. display a profile picture. See the User Format Plugin Module for more information.
Gadgets	New gadgets can be created by writing an XML descriptor file, packaged as an Atlassian plugin. See Writing an Atlassian Gadget for more information.
Reports	JIRA comes with various reports built-in. Using the plugin system, new reports can be written, providing new ways of viewing and summarising JIRA's data.
Workflow functions and conditions	JIRA's issue workflow (states and state transitions an issue can go through) can be customized through the web interface (see the workflow documentation. The workflow engine (OSWorkflow) provides hooks where you can plug in your own behaviour: • Run arbitrary Java when a certain transition occurs, via post-functions • Limit visibility of transitions to certain users, via conditions • Validate input on transition screens (eg. in comments), via validators. See the guide to creating custom workflow elements for how to write your own workflow post-functions, conditions and validators. Once written, these can be packaged as plugins and reused.
Issue and Project Tabs	When viewing an issue, some issue information (comments, change history) is displayed in tabs:  Likewise, the 'Browse Project' page contains tab panels displaying project information:  By writing a plugin, you can add new issue or project tab panels to JIRA. For instance, you may wish to display project/issue data pulled in from an external source. This is how JIRA's Subversion. See the plugin guide for more information on writing these plugin types.
Listeners	JIRA has a complete event subsystem which fires events whenever anything happens. For example an `ISSUE_CREATED` event is fired whenever an issue is created.A listener is just a class which implements a `JiraListener` interface and is called whenever events occur in JIRA. Using those events, you can then perform any action you want. For example the email sent by JIRA is driven by the `MailListener`. This is useful when you want to drive or affect external systems from events which occur within JIRA - usually used to *push* data into outside systems. For more information, read the listeners documentation.
Services	Services are classes which implement the `JiraService` interface. When installed, you specify an update period and JIRA will call the `run()` method of your service periodically. A sample service is provided called `POPCommentService`. This service checks a particular POP mailbox periodically and if it finds messages, tries to extract an issue key from the subject. If the subject contains a key, the body of the mail is added as a comment to the message. Services are useful when you want to periodically *pull* data into JIRA from outside systems. For more information, see the services guide.
SOAP and XML-RPC remote interfaces	JIRA has a growing SOAP and XML-RPC interface. This enables you to drive JIRA automatically from external systems. For example you can have a Java program, Perl script or C# client add issues to JIRA. See the JIRA RPC overview for general information. For building RPC clients, check out the SOAP client tutorial and XML-RPC client tutorial. New RPC endpoints can also be added to JIRA as plugins - see RPC Endpoint Plugins.
Java	JIRA has a full set of Java APIs that can be used to update information with in JIRA. You can view the API here. JIRA commercial customers get full access to the JIRA source (see bottom of the downloads page), so you can modify JIRA itself if necessary. See the Building JIRA from Source page for more information.

Managing JIRA's Plugins

On this page:

- About Plugins
  - About 'Version 1' Plugins and 'Version 2' Plugins
  - How do I tell if a Plugin is 'Version 1' or 'Version 2'?
- Installing a JIRA Plugin
  - Installing a plugin from the Atlassian Plugin Exchange
  - Installing your own plugin
  - Installing a 'Version 1' plugin manually
- Viewing Installed Plugins

- Updating a JIRA Plugin
- Disabling a JIRA Plugin
- Enabling a JIRA Plugin
- Disabling/Enabling all User Installed Plugins (Safe Mode)
- Uninstalling a JIRA Plugin
    - Uninstalling a 'Version 1' plugin manually
- Configuring a JIRA Plugin
- See Also

About Plugins

A plugin is a .jar file (containing code, resources and a configuration file) that can be installed into an Atlassian product to add new functionality or change the behaviour of existing features.

You can use plugins to customise and extend the functionality of JIRA in a variety of ways, including:

- creating new dashboard gadgets
- creating new reports
- creating new types of custom fields
- customising workflow
- modifying the availability of 'issue operations' links ('Create Issue', etc)

JIRA ships with a number of preinstalled plugins, and many more are available for download from the Atlassian Plugin Exchange.

You can also create your own plugins — please visit the JIRA Development Hub for information on building '*Version 1*' plugins, or visit the Plugin Development Platform for information on building '*Version 2*' (OSGi) plugins. These plugins can be installed in your JIRA instance as described below.

Installed JIRA plugins can be enabled or disabled using the Universal Plugin (bundled with JIRA) as described below.

Every plugin is made up of one or more *plugin modules*. A single plugin may do many things, and each module represents a single function of the plugin. Individual modules can be enabled or disabled, although this is not recommended as modules can often depend on each other. To do so safely would require knowledge of the module interdependencies.

About 'Version 1' Plugins and 'Version 2' Plugins

There are two types of Atlassian plugins:

- **'Version 1' Plugins** — These plugins are compatible with the 'old' plugin framework that was used in JIRA prior to version 4.0, and also with the 'new' plugin framework used in JIRA version 4.0 and later. 'Version 1' plugins are installed into your JIRA installation directory under `atlassian-jira/WEB-INF/lib/`. **'Version 1' plugins must be installed manually** (see below) **and uninstalled manually** (see below).

- **'Version 2' Plugins** — These plugins are compatible with the 'new' plugin framework used in JIRA version 4.0 and later. **'Version 2' plugins are installed automatically, using the JIRA administration interface** (see below). They are installed into your JIRA home directory under `plugins/installed-plugins/`. 'Version 2' plugins are deployed in an internal OSGi container to isolate the plugin from the core code and other plugins, and to allow sophisticated dependency management. 'Version 2' plugins have to be specifically declared as such, using the `plugins-version="2"` attribute in the plugin's configuration file (`atlassian-plugin.xml`).

How do I tell if a Plugin is 'Version 1' or 'Version 2'?

Go to https://plugins.atlassian.com and look at the plugin's details. The '**Plugin System**' field will show 'ONE' for Version 1 plugins and 'TWO' for Version 2 plugins.

Installing a JIRA Plugin

Installing a plugin from the Atlassian Plugin Exchange

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

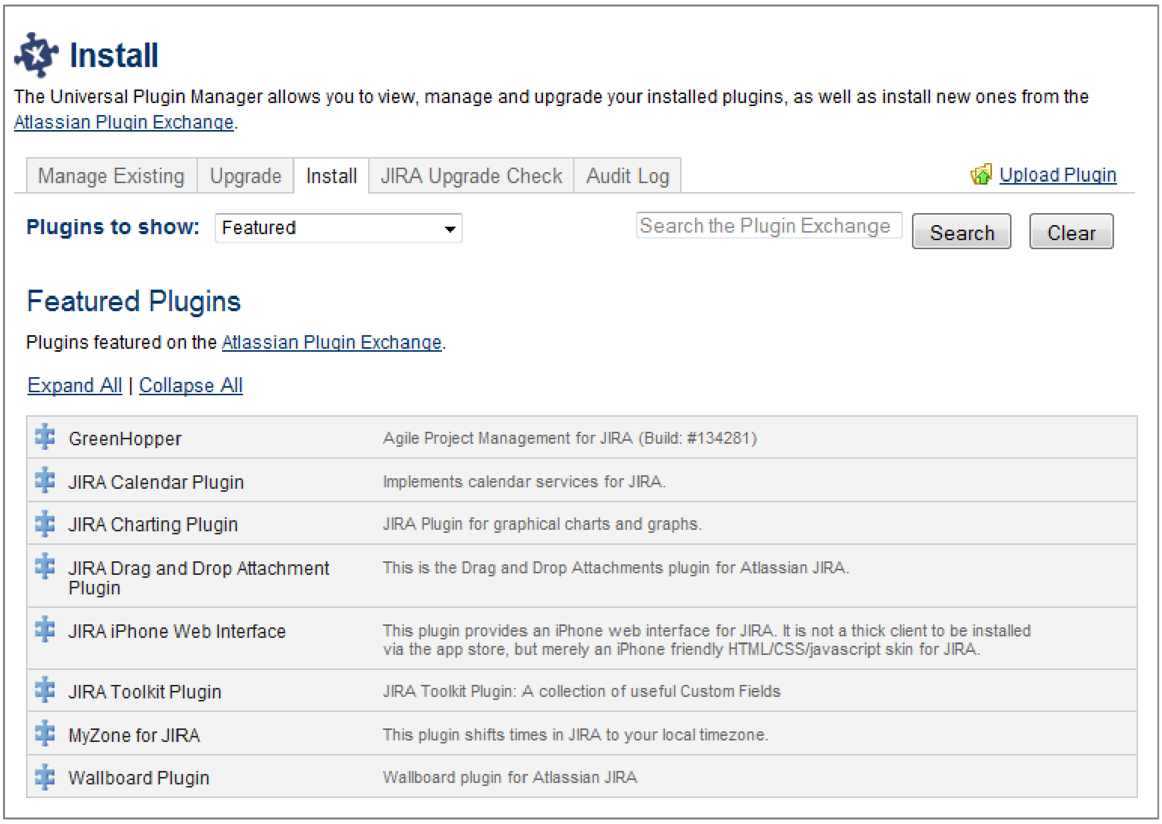
To find and add a plugin from the Atlassian Plugin Exchange,

1. Click the '**Install**' tab in the UPM. The Install Plugins page will display showing the featured plugins for your application (see screenshot below).
2. Search for your plugin as follows:
   - Enter some keywords that describe your desired plugin, e.g. 'Charting', in the 'Search the Plugin Exchange' search box and press 'Enter' on your keyboard.
   - Alternatively, just browse to the desired plugin in the list. choose '**Featured**', '**Popular**', '**Supported**' *(by Atlassian)* or '**All available**' from the '**Plugins to show**' dropdown to show a different list of plugins.
3. When you have located the desired plugin, click the '**Install**' button for the plugin to add it to your application. A confirmation message and the plugin details (see 'Viewing Plugin Details' in the Related Topics below) for the plugin will display, if it is installed successfully.

   Note: *You may need to restart your application for your change to take effect. The Universal Plugin Manager will inform you if this is the case.*

   Note: *Not all plugins can be automatically installed. Some required manual installation. These plugins will have a 'Download' button instead of an install button. In these cases, you should read and follow that plugin's installation instructions.*

Screenshot: Finding a new plugin from the Atlassian Plugin Exchange



Installing your own plugin

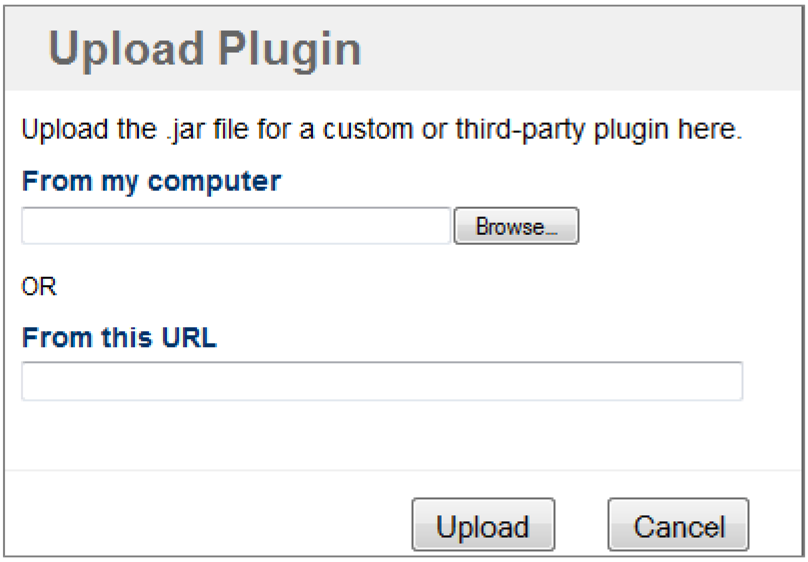
To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

To upload your own plugin,

1. Click the '**Install**' tab in the UPM. The find new plugin page will display showing the featured plugins for your application.
2. Click the '**Upload Plugin**' link. The 'Upload Plugin' window will display.
3. Enter the location of your plugin in either the '**From my computer**' or '**From this URL**' textbox.
   - If the plugin you want to install is on your computer, use the '**Browse**' dialogue to choose the plugin file.
   - If you want to install a plugin from a remote location, enter the URL of the plugin jar file in to the '**From this URL**' field.
4. Click the '**Upload**' button to upload and enable your plugin. A confirmation message for the plugin will display if it is installed successfully.
   Note: *You may need to restart your application for your change to take effect. The Universal Plugin Manager will inform you if this is the case.*

Screenshot: Uploading a new plugin



Installing a 'Version 1' plugin manually

Once you have downloaded or created your plugin jar file, follow these steps to install it in your JIRA instance:

1. Shut down JIRA.
2. Copy your plugin jar (e.g. '**EXAMPLE_PLUGIN.jar**') into the appropriate plugins directory:
   - If you are installing a '**Version 1**' plugin, copy the jar into your JIRA installation directory under `atlassian-jira/WEB-INF/lib/`.
   - If you are installing a '**Version 2**' (OSGi) plugin, copy the jar into your JIRA home directory under `plugins/installed-plugins/`.

   To find out whether a plugin is Version 1 or Version 2, check the Plugin Exchange. Note that plugins have different versions, and older builds of plugins may be **Version 1**.
3. Start up JIRA.
4. Go to 'Administration > Plugins'. Your plugin (e.g. '**EXAMPLE_PLUGIN**') will be listed and enabled.

If you copy the JIRA jar file of a 'Version 1' plugin into the installation directory for 'Version 2' plugins (or vice versa), JIRA provides a warning, indicating that the plugin has been installed into the wrong directory.

However, there may be a very small number of 'Version 1' plugins (such as the JIRA RPC Plugin) which, when accidentally installed into the 'Version 2' plugins directory (`<JIRA home directory>/plugins/installed-plugins/`), will not generate this warning. Nevertheless, the plugin will not function correctly and the JIRA administration 'Plugins' page typically indicates that this plugin has zero modules.

To rectify this problem, reinstall the plugin jar to the correct directory by:

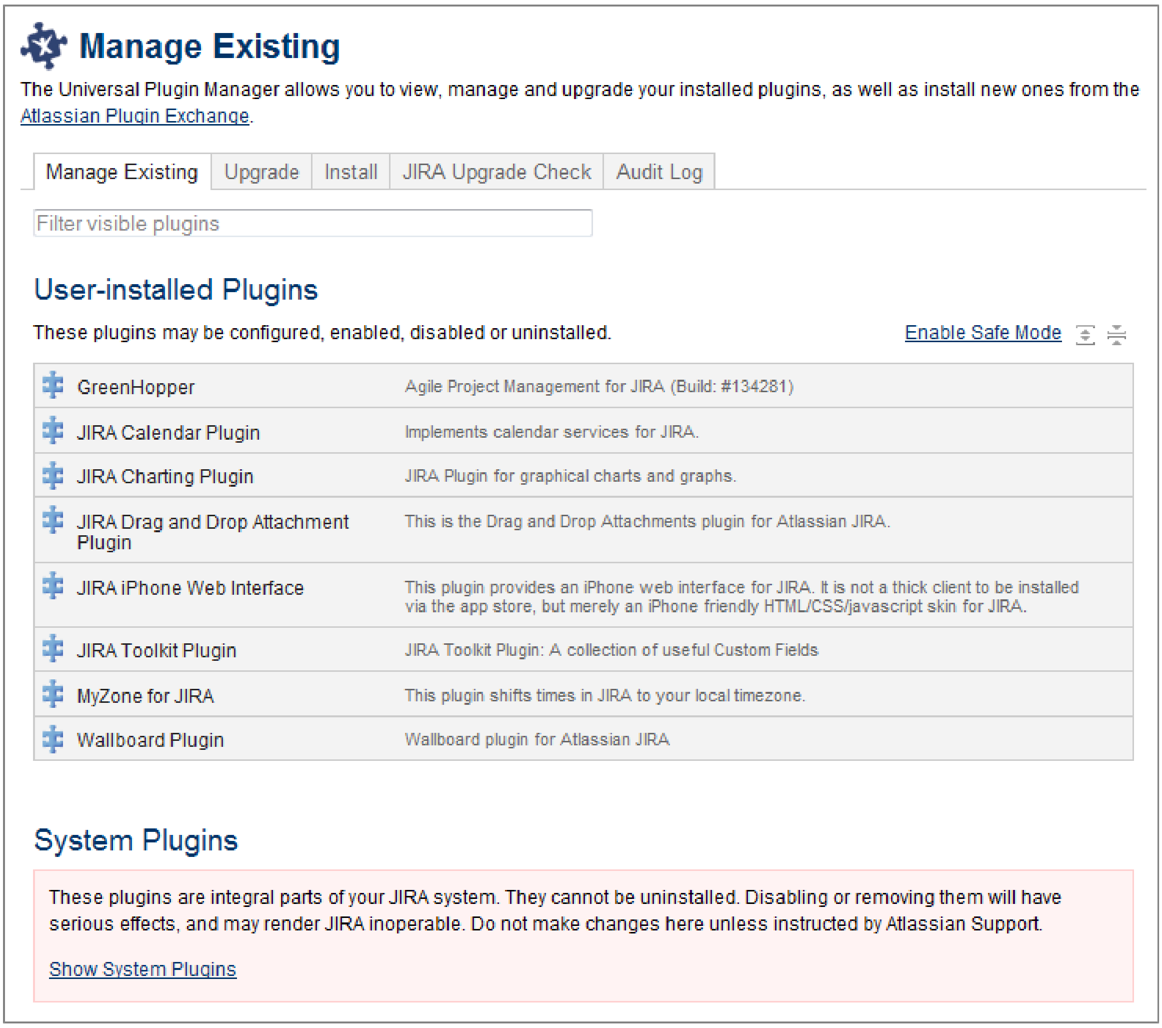
1. Shutting down JIRA,
2. Moving the plugin jar file to `<JIRA installation directory>/atlassian-jira/WEB-INF/lib/`
3. Restarting JIRA.

Viewing Installed Plugins

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

Screenshot: Finding installed JIRA plugins, using the Universal Plugin Manager



Updating a JIRA Plugin

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

To upgrade a plugin,

1. Click the '**Upgrade**' tab. The plugin upgrades page will display.
   - If you have a version of a plugin installed that is not the latest version available, the latest **compatible** version of the plugin will be listed on this page.
   - You can click the plugin name to expand the row and view more information about the plugin.
   - You can filter your list by entering keywords in the 'Filter plugins' text box.
2. Click the '**Upgrade Now**' button next to the relevant plugin to update it to the plugin version displayed.

To upgrade all available plugins,

1. Click the '**Upgrade**' tab. The plugin upgrades page will display.
   - If you have a version of a plugin installed that is not the latest version available, the latest **compatible** version of the plugin will be listed on this page.
   - You can click the plugin name to expand the row and view more information about the plugin.
   - You can filter your list by entering keywords in the 'Filter plugins' text box.
2. Click the '**Upgrade all**' button next to the relevant plugin, to update each to the plugin version displayed for each plugin.
   Note: *Some plugins cannot be installed via the Universal Plugin Manager – these plugins must be installed manually. These plugins will not be upgraded automatically.*

Disabling a JIRA Plugin

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

To disable a plugin,

1. Click the '**Manage Existing**' tab. The plugins installed on your application will be displayed. Enabled plugins will be listed with an icon.
2. Locate the plugin that you want to disable and click the title to expand its plugin details section.
3. Click the '**Disable**' button.
4. Once a plugin has been disabled, you *may* need to restart your application for your change to take effect. If so, the plugin will display with 'Disabled, requires restart'. This will depend on the plugin and the application.
   The plugin will display with an '**Enable**' link once your change is applied (i.e. immediately or after an application restart).

Also note that JIRA can automatically disable plugins if they cause errors on startup or initialisation. This is usually caused by having an old version of the plugin that is not compatible with your current version of JIRA. If this occurs, it will be indicated on the 'Current Plugins' page (shown above). You will need to stop JIRA, install the newer version of the plugin and restart JIRA.

Enabling a JIRA Plugin

Note: newly installed plugins are enabled by default.

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

To enable a plugin,

1. Click the '**Manage Existing**' tab. The plugins installed on your application will be displayed. Disabled plugins will be listed with an icon.
2. Locate the plugin that you want to enable and click the title to expand its plugin details section.
3. Click the '**Enable**' button.
4. Once a plugin has been enabled, you *may* need to restart your application for your change to take effect. If so, the plugin will display with 'Enable, requires restart'. This will depend on the plugin and the application.
   The plugin will display with an '**Disable**' link once your change is applied (i.e. immediately or after an application restart).

Disabling/Enabling all User Installed Plugins (Safe Mode)

Running JIRA in Safe Mode disables all user installed plugins at once. All plugins that were disabled when you entered Safe Mode will be re-enabled when you exit Safe Mode.

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

To enable Safe Mode,

1. Click the 'Manage Existing' tab. The plugins installed on your application will be displayed.
2. Click the '**Enable Safe Mode**' button.
3. Click the '**Continue**' button in the confirmation window that displays. All user installed plugins will be disabled and your application will now be running in 'Safe Mode' (see screenshot below).
4. You can now make changes to your installed plugins, as desired (e.g. enable/disable specific plugins or plugin modules).
5. Exit safe mode by clicking one of the links in the Safe Mode banner:
   - Click '**Exit Safe Mode and restore the previous configuration**' to exit support mode and restore your plugin configuration prior to entering Safe Mode.
   - Click '**Exit Safe Mode and keep the current configuration**' to exit support mode and keep any changes made to your plugin configuration during Safe Mode.

Uninstalling a JIRA Plugin

Note: If you only want to temporarily remove a plugin, you may wish to disable it instead of uninstalling it.

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

To uninstall a plugin via the UPM,

1. Click the '**Manage Existing**' tab. The plugins installed on your application will be displayed.
2. Click the name of the plugin that you wish to uninstall. The plugin details for the plugin will display.
3. Click the '**Uninstall**' button. The information summary will display an 'Uninstalling' message and the plugin will be uninstalled from your application.

Uninstalling a 'Version 1' plugin manually

1. Shut down JIRA.
2. Remove your plugin jar (e.g. 'EXAMPLE_PLUGIN.jar') from the appropriate plugins directory:
   - If you are removing a 'Version 1' plugin, remove the jar from your JIRA installation directory under atlassian-jira/WEB-INF/lib/.
   - If you are removing a 'Version 2' (OSGi) plugin, remove the jar from your JIRA home directory under plugins/installed-plugins/.
3. Start up JIRA.
4. Go to 'Administration > Plugins'. Your plugin (e.g. 'EXAMPLE_PLUGIN') will no longer be listed.

Configuring a JIRA Plugin

A number of plugins have advanced configuration options, e.g. a plugin may contain multiple 'modules' that you can enable/disable. If you have one of these plugins installed on your application instance, you can view and update these configuration options via the **Universal Plugin Manager (UPM)**.

To access the Universal Plugin Manager in JIRA,

1. Click the **'Administration'** link on the top bar to open the administration console.
2. Click the '**Plugins**' link under the '**System**' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your JIRA instance.

To configure a plugin,

1. Click the '**Manage Existing**' tab.
2. Locate the plugin that you want to configure in the list of installed plugins and click its title. The plugin details section will expand (see first screenshot below).
3. Click the '**Configure**' link for that plugin. The link will be disabled if the plugin is disabled. If there is no '**Configure**' link, then there are no advanced configuration options available for that plugin.
4. The advanced configuration options for the plugin will display (see second screenshot below). Update the configuration settings as desired and save your changes.
   Note: The advanced configuration screens are provided by each *plugin*. If you encounter any problems after you click the '**Configure**' link, the plugin is responsible for the issue, not the Universal Plugin Manager.

See Also

- Configuring Plugins to Work with the Universal Plugin Manager

Listeners

Listeners are unique to JIRA, and a very powerful way to extend it.

JIRA has a complete event subsystem which fires events whenever anything happens inside the application. For example an `ISSUE_CREATED` event is fired whenever an issue is created.

A Listener is a class that implements one of the Listener interfaces. It is then called whenever events occur in JIRA. Using those events, you can then perform any action you want. For example the email sent by JIRA is driven by the MailListener.

Listeners are most useful when you want to drive or affect external systems from events which occur within JIRA.

On this page:

- Listener Interfaces
- Example Listeners
- Registering a Listener
- Editing Listener Properties
- Removing a Listener
- Custom Events

Listener Interfaces

There are currently two different concrete Listeners within JIRA (both of which extend the base JiraListener interface).

com.atlassian.jira.event. **JiraListener**	The base interface which all other JIRA listener interfaces extend. Covers core listener properties like uniqueness, description, parameters etc. API doc
com.atlassian.jira.event.issue. **IssueEventListener**	The main listener interface in JIRA, used whenever anything happens to an issue. API doc
com.atlassian.jira.event.user. **UserEventListener**	This listener is called whenever anything happens to a user within JIRA. API doc

Example Listeners

The examples provided may be freely used and modified for use in your own environment. The source of all examples is available and should give you good overview of how simple it is to write your own listeners. Both example listeners are included with JIRA 2.1, and both implement `UserEventListener` and `IssueEventListener`.

- **DebugListener** (source) — This is a very simple listener that prints events and their content to System.out whenever they are received. To test this listener, add a listener with the class `com.atlassian.jira.event.listeners.DebugListener`.
- **MailListener** (source) — This listener is how mail notifications are currently sent from within JIRA, and a good example of a more complex listener. It basically listens for events, and turns them into email notifications using Velocity templates to generate the mail bodies.
  This listener is usually always turned on in JIRA — see Email Notifications for more details. If you want to write more complex or more specific notifications, you can disable the internal MailListener and add your own.

Other examples of useful tasks that can be accomplished with listeners are:

- **Send SMS or IM notifications** — A listener could easily send notifications for various events via SMS or instant messenger (e.g. ICQ or AIM) - or anywhere that you have a Java library to send messages.
- **Group notifications** — A listener could notify certain groups of issue changes, depending on the content of the issue. For example any issue containing "windows" in the environment could notify your "windows-developers" group.

Registering a Listener

To register a listener:

1. Make sure your listener class is in the classpath where JIRA can see it - the best locations are usually the `WEB-INF/classes` or `WEB-INF/lib` (as a JAR) directories within the JIRA web application.
2. Log in as a user with the **'JIRA System Administrators'** global permission.
3. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
4. Click the **'Listeners'** link in the **'System'** section of the left-hand navigation column.
5. Enter a **'Name'** (an appropriate name for this listener) and **'Class'** (the fully qualified class of your listener) for your listener and click **'Add'**.
6. The listener will now be added. Click **'Edit'** for your listener to edit its properties.

Editing Listener Properties

You can edit a listeners properties by clicking **'Edit'** for that listener in the **'Listeners'** section of the **'Administration'** tab.

When defining your own Listener, there is a method `getAcceptedParams` to overload for defining the parameter names, pass as an array of String objects. The `DebugParamListener` class is an example of doing this.

Removing a Listener

To remove a listener, click **'Del'** for that listener in the **'Listeners'** section of the **'Administration'** tab.

Custom Events

With the ability to add custom events to JIRA, the Listener must be updated to deal with the event as appropriate. This is possible by providing an implementation for the method `customEvent(IssueEvent event)` in the Listener. For example, the MailListener implementation passes the custom event on for notification processing. The DebugListener logs that the custom event has been fired.

Services

A service is a class that runs periodically within JIRA. Since a service runs inside JIRA, it has the ability to use all of the JIRA API — and, as it is written in Java, it can use any Java libraries.

Services are useful because they enable you to integrate with external systems by pulling data into JIRA periodically. JIRA comes with a number of pre-written services, and custom services can be written and plugged in at runtime. If you want a service to perform typical operations on JIRA issues (eg. close a list of issues meeting certain criteria), then the Jelly Service can be configured to run a custom Jelly script.

On this page:

- Registering a Service
  - Mail Service Properties
- Editing Service Properties
- Removing a Service
- Built-in Services
- Message Handlers
  - CreateIssueHandler
  - CreateOrCommentHandler
  - FullCommentHandler
  - NonQuotedCommentHandler
  - RegexCommentHandler
  - CVSLogHandler
- Message Handlers and Events
- Building Services from source

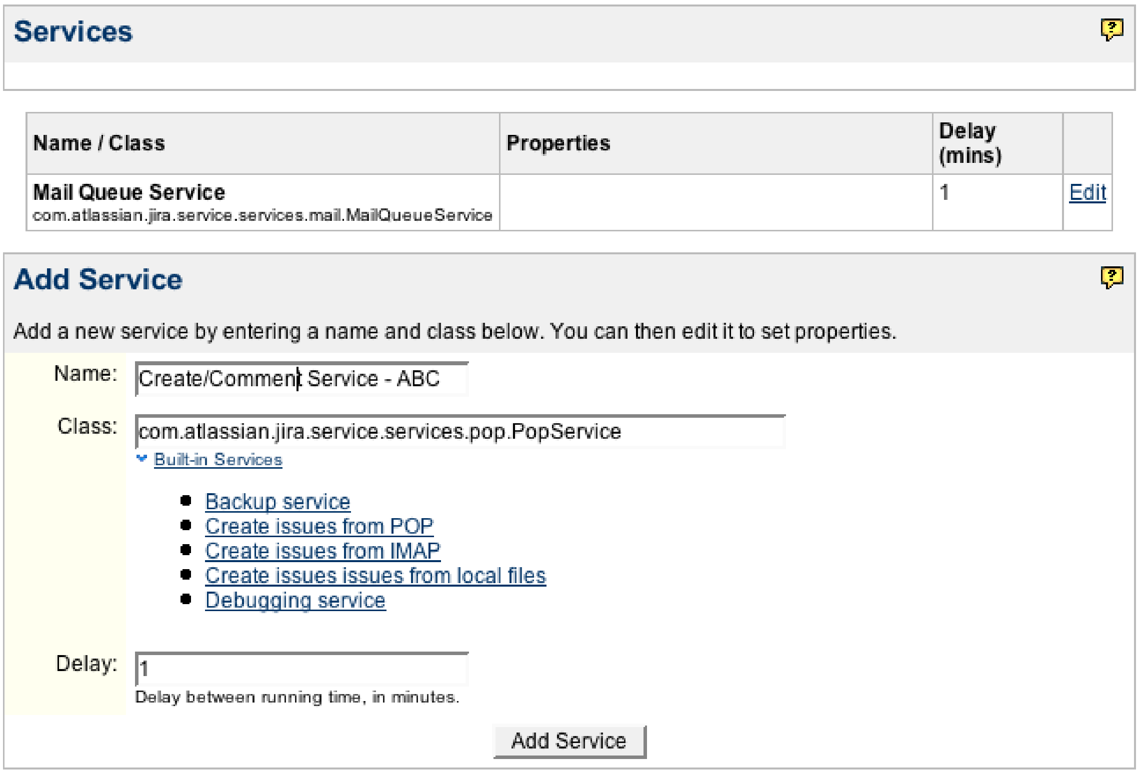
Writing a new service?
If you're not extending a builtin JIRA service, you should strongly consider writing your new service using the SAL API.
We've provided a tutorial here.

Registering a Service

Services are set up as follows.

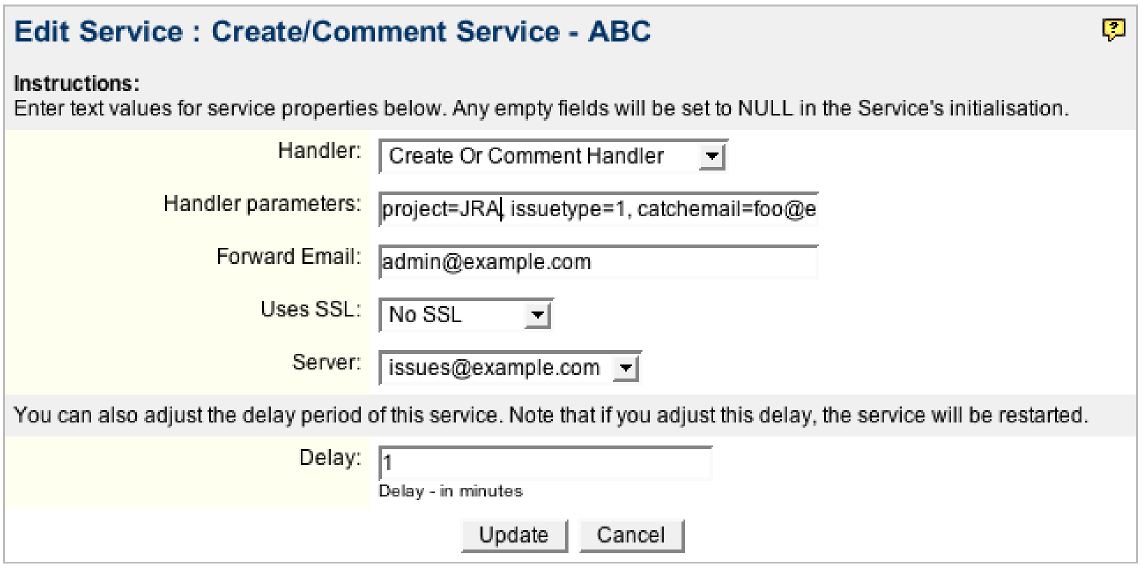
1. For custom-written services, make sure your service class is in the classpath where JIRA can see it — the best locations are usually the **WEB-INF/classes** or **WEB-INF/lib** (as a JAR) directories within the JIRA web application.
2. Log in as a user with the **'JIRA System Administrators'** global permission.
3. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
4. Under the **'System'** sub-menu on the left, click the **'Services'** link.
5. Fill out the **Add Service** form with the following parameters:
   - **Name** — a descriptive name for this service.
   - **Class** — the fully qualified class of your service. Will likely be of the form **com.atlassian.jira.service.services. *type. Type* Service.** See Sample services for provided service class names.

- **Delay** — the delay (in minutes) between service runs.
  For example, adding a POP Service:



  Now click **Add Service**

6. This will bring up the **'Edit Service'** screen to configure the service. Depending on the service, you may now be required to specify a MessageHandler, a helper class that processes email messages. MessageHandlers are configured with a parameter string, a comma-separated list of name=value pairs. Consult the tables below as to what parameters each MessageHandler accepts. The following screenshot shows a CreateIssueHandler being attached to a POP Service:



Mail Service Properties

In addition to Message Handlers, the mail services POP Service and IMAP Service can be further configured with further properties on how the mail is found and handled.

Forward Emails
If the mail service is unable to handle a message you can define an email address to forward these messages to. Just add the desired email address into the 'ForwardEmail' textbox.

> **Note**
> You will need to configure a SMTP mail server before this functionality can be used.

SSL
The mail service can be configured to connect to the email server using an SSL connection. To do this select the appropriate SSL connection

in the 'Use SSL' select list. If you do not want JIRA to use SSL, select 'No SSL'.

If you are using SSL, you will need to preload the IMAPS/POPS server's public key in JIRA (actually, the Java virtual machine running JIRA). See Connecting to SSL Services for information on how to do this.

Folder (IMAP Only)
For the IMAP Service it is possible to specify the folder you wish JIRA to read when scanning for messages. To do this, add the desired folder name to the 'Folder' field.

> If a folder is not specified the mail service will default to 'INBOX'.

Editing Service Properties

To edit a service's properties,

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu on the left, click the **'Services'** link.
4. Click the **Edit** for the relevant service.

For example, to change the interval at which email is sent from JIRA, edit the **Mail Queue Service** and change the **Delay** from the default value of 1 minute.

Removing a Service

To remove a service,

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'System'** sub-menu on the left, click the **'Services'** link.
4. Click the **Del** for the relevant service.

Built-in Services

JIRA has some useful services out of the box, which may be used as-is or modified for use in your own environment. The source code for all built-in services is available and should give you a good overview of how simple it is to write your own services. All built-in services are included with JIRA, and need only be configured to be used.

Export Service (source)
The Export Service is useful for periodically backing up JIRA. It exports all data from JIRA every time it is run, into a directory supplied as a parameter. The export files are timestamped, thus the service can act as a backup system.

To test this service, add a service with the class **com.atlassian.jira.service.services.export.ExportService**. JIRA sets up an ExportService during the setup wizard, so you may find you already have one.

POP Service (source)
The POP service reads messages from a defined POP3 mail box, and then performs operations within JIRA based on the message contents. A MessageHandler (see below for more information) is configured for each instance of the POP Service, which determines how the message is handled.

To test this service, add a service with the class **com.atlassian.jira.service.services.pop.PopService** and configure the POP details and message handler in the properties of the service.

To make the POP service even more useful, you can connect it with the email notifications sent by JIRA. Simply set the `FROM` address in the MailListener to be the same address as the POP mailbox being monitored. This allows you to do things like reply to email notifications and have your replies added as comments on the issue.

IMAP Service (source)
Similar to POP service, except that it reads from an IMAP mailbox's "INBOX" instead. Like the POP service, it removes emails after reading.

To test this service, add a service with the class **com.atlassian.jira.service.services.imap.ImapService** and configure the IMAP details and message handler in the properties of the service.

File Service (source)
The File service is very much like the POP service above, except that instead of reading emails from a POP mailbox, they are read from a directory on disk. This is useful because you do not need an anonymous POP mail box (which could be a potential security risk) to use it. Instead you can simply get your mail server to dump incoming email messages into a particular directory, which the File service scans periodically.

The setup of this service is identical to the POP Service above, except that the service class is **com.atlassian.jira.service.services.file.FileService** and the service is configured with the directory to watch instead of the POP mailbox details. Both File and POP services can use the same MessageHandlers.

Jelly Service (source)
Jelly is a scripting language which allows tasks in JIRA to be automated. The Jelly Service periodically runs a Jelly script. For example, you could use this to periodically run a search request, loop through the results and add a comment, change the issue state (see the Jelly examples. If you're considering writing a custom service, often a periodically invoked Jelly script may be an easier alternative.

> JIRA Service classes must all extend com.atlassian.jira.service.JiraService. Most do so by extending com.atlassian.jira.service.AbstractService or some more specialised subclass.

Message Handlers

POPService, IMAPService and FileService above use MessageHandlers (API doc) to perform operations within JIRA based on the format of incoming email messages.

You can design your own MessageHandlers to integrate JIRA with your own processes, and plug them into any of these three services via the **Administration** interface. (Please also see Adding your own email handling classes).

MessageHandlers are configured with a comma-separated list of name-value pairs, known as the **handler parameters.**

There are a number of default message handlers that ship with JIRA, described below:

CreateIssueHandler

com.atlassian.jira.service.util.handler. **CreateIssueHandler** | API doc | Source

This message handler creates a new issue for each incoming message.

CreateIssueHandler parameters

Parameter	Meaning	Value
project	Default project where new issues are created.	Project key, e.g. `JRA`
issuetype	Default type for new issues.	Integer representing issue type: 1. Bug 2. New Feature 3. Task 4. Improvement
reporterusername	Username of default reporter, if sender not recognised.	JIRA username, e.g. `admin`
createusers	If a message comes from unrecognised address, create a new JIRA user with the user name and email address set to the 'From' address of the message. The password for the new user is randomly generated, and an email is sent to the new user informing them about their new account in JIRA. **Note:** this parameter is not compatible with `reporterusername` . If `createusers` is set to true, and the `reporterusername` is also supplied, users will be created if they cannot be found using the from addresses of the received messages. That is, the `reporterusername` will be ignored. By default (if not supplied), `createusers` is set to false.	`true` or `false`
notifyusers	This parameter is only used if **createusers** is set to true. If **notifyusers** is set to false they will not receive a notification that their account has been created via email. The default value is true to preserve the behaviour before this parameter was added. By default (if not supplied), `notifyusers` is set to true.	`true` or `false`
catchemail	If set, only emails to the specified recipient (To:, Cc:) are processed. Please note, setting this parameter also suppresses the generation of the addressee as watcher.	e.g. `issues@mycompany.com`
ccassignee	If an email has a cc address listing an assignable user already present in JIRA, by default JIRA will **assign** the issue to that user when the issue is created. In JIRA 3.1 and above, if you do not want this behaviour, set **ccassignee** to **false.** By default (if not supplied), `ccassignee` is set to true.	`true` or `false`

ccwatcher	If an email has a **To, Cc** or **Bcc** address listing a user already present in JIRA, it is possible to automatically add that user to an issue's watchers list, by setting the `ccwatcher` parameter to `true` . Please note that users created by the `createusers` parameter cannot be added to an issue's watchers list by the `ccwatcher` parameter. Users must already exist in JIRA's userbase, and must have an email address. By default (if not supplied), `ccwatcher` is set to false.	`true` or `false`
bulk	This option only affects emails with the 'Precedence: bulk' or emails with an 'Auto-Submitted' header that is not set to "no". One of the following actions will be performed, depending on the value of this option: • `ignore` — Ignore the email and do nothing • `forward` — Forward the email to the address set in the "Forward Email" text field • `delete` — Delete the email permanently. Any other values are invalid, and the handler will perform normally.	`ignore` or `forward` or `delete`

CreateOrCommentHandler

com.atlassian.jira.service.util.handler. **CreateOrCommentHandler** | API doc | Source

This message handler creates a new issue, or adds a comment to an existing issue. If the subject contains an issue key, the message is added as a comment to that issue. If no issue key is found, a new issue is created in the default project.

CreateOrCommentHandler parameters

Parameter	Meaning	Value
project	Default project where new issues are created. The `project` parameter is only relevant for issue creation, not for issue commenting. If an email contains an issue key in the email subject, and that issue exists in the JIRA instance, the handler will add the email as a comment on the issue, regardless of which project the issue is in.	Project key, e.g. `JRA`
issuetype	Default type for new issues.	Integer representing issue type: 1. Bug 2. New Feature 3. Task 4. Improvement
stripquotes	If set (to anything), quoted text is removed from comments.	(anything)
reporterusername	Username of default reporter, if sender not recognised.	JIRA username, e.g. `admin`
createusers	If a message comes from unrecognised address, create a new JIRA user with the user name and email address set to the 'From' address of the message. The password for the new user is randomly generated, and an email is sent to the new user informing them about their new account in JIRA. **Note:** this parameter is not compatible with `reporterusername` . If `createusers` is set to true, and the `reporterusername` is also supplied, users will be created if they cannot be found using the from addresses of the received messages. That is, the `reporterusername` will be ignored. By default (if not supplied), `createusers` is set to false.	`true` or `false`
notifyusers	This parameter is only used if **createusers** is set to true. If **notifyusers** is set to false they will not receive a notification that their account has been created via email. The default value is true to preserve the behaviour before this parameter was added. By default (if not supplied), `notifyusers` is set to true.	`true` or `false`
catchemail	If set, only emails to the specified recipient (To:, Cc:, Bcc:) are processed.	e.g. `issues@mycompany.com`
ccassignee	If an email has a Cc address listing an assignable user already present in JIRA, by default JIRA will **assign** the issue to that user. In JIRA 3.1 and above, if you do not want this behaviour, set **ccassignee** to **false.** By default (if not supplied), `ccassignee` is set to true.	`true` or `false`

ccwatcher	If an email has a **To, Cc** or **Bcc** address listing a user already present in JIRA, it is possible to automatically add that user to an issue's watchers list, by setting the `ccwatcher` parameter to `true` . Please note that users created by the `createusers` parameter cannot be added to an issue's watchers list by the `ccwatcher` parameter. Users must already exist in JIRA's userbase, and must have an email address. By default (if not supplied), `ccwatcher` is set to false.	`true` or `false`
bulk	This option only affects emails with the 'Precedence: bulk' or emails with an 'Auto-Submitted' header that is not set to "no". One of the following actions will be performed, depending on the value of this option: 1. `ignore` — Ignore the email and do nothing 2. `forward` — Forward the email to the address set in the "Forward Email" text field 3. `delete` — Delete the email permanently Any other values are invalid, and the handler will perform normally.	`ignore` or `forward` or `delete`

FullCommentHandler

com.atlassian.jira.service.util.handler. **FullCommentHandler** \| API doc \| Source

This message handler creates a comment based on the entire body of the email received.

The issue to use is chosen from the first issue key found in the email subject. The author of the comment is taken from the from address of the email.

FullCommentHandler parameters

Parameter	Meaning	Value
reporterusername	Username of default reporter, if sender not recognised.	JIRA username, e.g. `admin`
createusers	If a message comes from unrecognised address, create a new JIRA user with the user name and email address set to the 'From' address of the message. The password for the new user is randomly generated, and an email is sent to the new user informing them about their new account in JIRA. **Note:** this parameter is not compatible with `reporterusername` . If `createusers` is set to true, and the `reporterusername` is also supplied, users will be created if they cannot be found using the from addresses of the received messages. That is, the `reporterusername` will be ignored. By default (if not supplied), `createusers` is set to false.	`true` or `false`
notifyusers	This parameter is only used if **createusers** is set to true. If **notifyusers** is set to false they will not receive a notification that their account has been created via email. The default value is true to preserve the behaviour before this parameter was added. By default (if not supplied), `notifyusers` is set to true.	`true` or `false`
catchemail	If set, only emails to the specified recipient (To:, Cc:, Bcc:) are processed.	e.g. `issues@mycompany.com`
bulk	This option only affects emails with the 'Precedence: bulk' or emails with an 'Auto-Submitted' header that is not set to "no". One of the following actions will be performed, depending on the value of this option: 1. `ignore` --- Ignore the email and do nothing 2. `forward` --- Forward the email to the address set in the "Forward Email" text field 3. `delete` --- Delete the email permanently. Any other values are invalid, and the handler will perform normally.	`ignore` or `forward` or `delete`

NonQuotedCommentHandler

com.atlassian.jira.service.util.handler. **NonQuotedCommentHandler** | API doc | Source

This message handler also creates a comment, but only uses the "non quoted" lines of the email body. A quoted line is any line that starts with">" or "|".

The issue to use is chosen from the first issue key found in the email subject. The author of the comment is taken from the from address of the email.

NonQuotedCommentHandler parameters

Parameter	Meaning	Value
reporterusername	Username of default reporter, if sender not recognised.	JIRA username, e.g. `admin`
createusers	If a message comes from unrecognised address, create a new JIRA user with the user name and email address set to the 'From' address of the message. The password for the new user is randomly generated, and an email is sent to the new user informing them about their new account in JIRA. **Note:** this parameter is not compatible with `reporterusername` . If `createusers` is set to true, and the `reporterusername` is also supplied, users will be created if they cannot be found using the from addresses of the received messages. That is, the `reporterusername` will be ignored. By default (if not supplied), `createusers` is set to false.	`true` or `false`
notifyusers	This parameter is only used if **createusers** is set to true. If **notifyusers** is set to false they will not receive a notification that their account has been created via email. The default value is true to preserve the behaviour before this parameter was added. By default (if not supplied), `notifyusers` is set to true.	`true` or `false`
catchemail	If set, only emails to the specified recipient (To:, Cc:, Bcc:) are processed.	e.g. `issues@mycompany.com`
bulk	This option only affects emails with the 'Precedence: bulk' or emails with an 'Auto-Submitted' header that is not set to "no". One of the following actions will be performed, depending on the value of this option: 1. `ignore` — Ignore the email and do nothing 2. `forward` — Forward the email to the address set in the "Forward Email" text field 3. `delete` — Delete the email permanently. Any other values are invalid, and the handler will perform normally.	`ignore` or `forward` or `delete`

RegexCommentHandler

com.atlassian.jira.service.util.handler. **RegexCommentHandler** | API doc | Source

This message handler creates a comment from an email body - but ignores any part of the email body past a specified marker or separator. For mail systems like Lotus Notes and Outlook, emails are separated from the quoted email by some predictable text like "--- Original Message ---" or "Extranet\n email.address/DOM/REG/CONT/CORP@CORPMAIL" The RegexCommentHandler can take any valid regular expression — and in fact filter quoted mails from various different mail systems simultaneously.

- If the pattern is found, it returns the text before the first match — and discards the rest of the email body
- If the pattern is not found, it returns the email body unchanged
- If the regex is not specified, it returns the email body unchanged
- If there is any error (i.e. regex expression error), it returns the email body unchanged.

RegexCommentHandler parameters

Parameter	Meaning	Value
reporterusername	Username of default reporter, if sender not recognised.	JIRA username, e.g. `admin`
createusers	If a message comes from unrecognised address, create a new JIRA user with the user name and email address set to the 'From' address of the message. The password for the new user is randomly generated, and an email is sent to the new user informing them about their new account in JIRA. **Note:** this parameter is not compatible with `reporterusername` . If `createusers` is set to true, and the `reporterusername` is also supplied, users will be created if they cannot be found using the from addresses of the received messages. That is, the `reporterusername` will be ignored. By default (if not supplied), `createusers` is set to false.	`true` or `false`
notifyusers	This parameter is only used if **createusers** is set to true. If **notifyusers** is set to false they will not receive a notification that their account has been created via email. The default value is true to preserve the behaviour before this parameter was added. By default (if not supplied), `notifyusers` is set to true.	`true` or `false`
catchemail	If set, only emails to the specified recipient (To:, Cc:, Bcc:)are processed.	e.g. `issues@mycompany.com`
splitregex	Regular expression matching the text separating the mail from any previous mails. **Note that the regexp must begin and end with a delimiter character, typically '/'..** Also note that currently, commas are not allowed in regexps, as commas are used to separate handler parameters and there is not (as yet) an escape syntax.	e.g. `/-{}{}{}{}--{}\s*Original Message\s*{}---/` or `/________________*/`

bulk	This option only affects emails with the 'Precedence: bulk' or emails with an 'Auto-Submitted' header that is not set to "no". One of the following actions will be performed, depending on the value of this option: 1. `ignore` — Ignore the email and do nothing 2. `forward` — Forward the email to the address set in the "Forward Email" text field 3. `delete` — Delete the email permanently Any other values are invalid, and the handler will perform normally.	`ignore` or `forward` or `delete`

CVSLogHandler

com.atlassian.jira.service.util.handler. **CVSLogHandler** | API doc | Source

This message handler parses CVS Log messages and adds the relevant sections as a comment.

The comment is added to *any* issue whose key is mentioned in the CVS commit message.

For instance if you commit to CVS with the message " *This commit fixes JRA-57 and JRA-58.* ", a comment will be added to issues JRA-57 and JRA-58.

The body of the comment includes the commit message entered by the developer and the files involved in the commit.

> **Warning**
> JIRA no longer uses CVSLogHandler for its CVS integration — this service is kept here purely as an example.

To use this message handler, setup your CVS server to email commit messages using something like SyncMail.

CVSLogHandler parameters

Parameter	Meaning	Value
reporterusername	Username of default reporter, if sender not recognised.	JIRA username, e.g. `admin`
createusers	If a message comes from an unrecognised address, create a new JIRA user with the user name and email address set to the 'From' address of the message. The password for the new user is randomly generated, and an email is sent to the new user informing them about their new account in JIRA. **Note:** this parameter is not compatible with `reporterusername` . If `createusers` is set to true, and the `reporterusername` is also supplied, users will be created if they cannot be found using the from addresses of the received messages. That is, the `reporterusername` will be ignored. By default (if not supplied), `createusers` is set to false.	`true` or `false`
notifyusers	This parameter is only used if **createusers** is set to true. If **notifyusers** is set to false they will not receive a notification that their account has been created via email. The default value is true to preserve the behaviour before this parameter was added. By default (if not supplied), `notifyusers` is set to true.	`true` or `false`
catchemail	If set, only emails to the specified recipient (To:, Cc:, Bcc) are processed.	e.g. `issues@mycompany.com`
bulk	This option only affects emails with the 'Precedence: bulk' or emails with an 'Auto-Submitted' header that is not set to "no". One of the following actions will be performed, depending on the value of this option: 1. `ignore` — Ignore the email and do nothing 2. `forward` — Forward the email to the address set in the "Forward Email" text field 3. `delete` — Delete the email permanently Any other values are invalid, and the handler will perform normally.	`ignore` or `forward` or `delete`

Message Handlers and Events

The message handlers will dispatch a JIRA event depending on the actions they perform. For more information on JIRA events please refer to the Notification Schemes section.

The CreateIssueHandler will dispatch an 'Issue Created' event whenever it creates a new issue.

The CreateOrCommentHandler will dispatch one of 'Issue Created', 'Issue Commented' or 'Issue Updated' events:

- 'Issue Created' event is dispatched whenever it creates a new issue.
- 'Issue Commented' event is dispatched if the issue already exists and a comment is added only.
- 'Issue Updated' event is dispatched if the issue already exists and a comment with attachment(s) is added.

Each of the comment handlers (FullCommentHandler, NonQuotedCommentHandler, RegexCommentHandler and CVSLogHandler) will dispatch the 'Issue Commented' event if the message only contains a comment. However, if the message contains an attachment as well, it will dispatch the 'Issue Updated' event instead.

Building Services from source

To build any of the linked sample code:

- If you have JIRA Standalone, download to the **external-source/src/** directory, and read the instructions in **external-source/README.txt** for build instructions.
- If you have the JIRA WAR/Webapp distribution, download the source to the **src/** directory. The code will be compiled into the webapp when `build.sh/build.bat` is run.

Jelly Tags

Jelly is a scripting and templating language from Apache's Jakarta project. It is similar to Ant, in that scripts are XML, and each tag maps to a Java class, but has a more sophisticated internal pipeline model for tag interaction, much like JSP taglibs. See the Jelly website for more details.

JIRA comes with a number of Jelly tags implementing core operations in JIRA. This provides a scriptable interface to JIRA. There are many possible uses for JIRA Jelly tags, the most common being importing data into JIRA from other systems, and automating common administrative tasks (see the examples below).

On this page:

- Enabling Jelly
- Running a Jelly script
- Writing a Jelly script
    - jira:AddActorsToDefaultProjectRole
    - jira:AddActorsToProjectRole
    - jira:AddComment
    - jira:AddComponent
    - jira:AddFieldToScreen
    - jira:AddPermission
    - jira:AddUserToGroup
    - jira:AddVersion
    - jira:AssignIssue
    - jira:AttachFile
    - jira:CreateCustomField
    - jira:CreateGroup
    - jira:CreateIssue
    - jira:CreatePermissionScheme
    - jira:CreateProject
    - jira:CreateProjectRole
    - jira:CreateUser
    - jira:DeleteProjectRole
    - jira:GetDefaultRoleActors
    - jira:GetProjectRole
    - jira:GetProjectRoleActors
    - jira:IsProjectRoleNameUnique
    - jira:LinkIssue
    - jira:Login
    - jira:RemoveActorsFromDefaultProjectRole
    - jira:RemoveActorsFromProjectRole
    - jira:RemoveUser
    - jira:RunSearchRequest
    - jira:SelectComponentAssignees
    - jira:TransitionWorkflow
    - jira:UpdateProjectRole
- Beta Tags
- Sample scripts

Enabling Jelly

JIRA's Jelly support is **disabled** by default, as Jelly, in principle, allows running arbitrary Java code on the server under the Tomcat account. In some environments this may be considered a **security risk**, depending on who is allowed to configure and run Jelly scripts (a **'JIRA System Administrators'** permission is required). We recommend to use Jelly only when you absolutely cannot do without it and disable Jelly support when you do not need it any more.

To enable Jelly, set the **jira.jelly.on** system property when starting your application server. System properties are set with parameters to the `java` command, e.g. `java -Djira.jelly.on=true ...`. (You can set this parameter in the setenv.sh file in your /bin folder)

How to set this property depends on your application server. For example, with Tomcat (JIRA standalone distribution), set the environment variable **`JAVA_OPTS=-Djira.jelly.on=true`**, or when running JIRA Standalone as a service, set the service JVM parameter.

Running a Jelly script

To run a Jelly script once:

1. Log in as a user with the **'JIRA System Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Under the **'Options & Settings'** sub-menu in the left-hand navigation column, click the **'Jelly Runner'** link.
4. Paste your Jelly script into the text area.

To run a Jelly script periodically:
Configure a service with the following class: `com.atlassian.jira.jelly.service.JellyService`.

Writing a Jelly script

Scripts are generally of the form:

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<!--
    Add your own Jelly XML here
-->
</JiraJelly>
```

There are also a few extra tags that can be accessed by using the following outer tag, instead of the one above (these are tags that were formerly restricted to the now-defunct JIRA Enterprise edition):

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib">
<!--
    Add your own Jelly XML here
-->
</JiraJelly>
```

In addition to the JIRA tags, you can use tags from the email, http, soap, sql and core Jelly taglibs. More can be added by the user if necessary.

Many of JIRA's Jelly tags set *context variables,* so subsequent tags can refer to their output by dereferencing the context variable (e.g. `${jira.new.username}`). Other tags let you explicitly specify the name of a variable to store some output in, e.g., <jira:CreateUser> has `issueKeyVar` and `issueIdVar` parameters:

```
<jira:CreateIssue project-key="TP" summary="Issue One" issueKeyVar="issuekey"
issueIdVar="issueid"/>
          Raised issue ${issuekey} with id ${issueid}
```

Note that the variable is only set **after** the tag is closed, not inside the tag.

Due to this variable interpolation, if your text contains anything of the form `${something}` , you need to escape this as `$${something}` to prevent the 'variable' being expanded to a blank string.

The list of currently available tags:

- jira:AddActorsToDefaultProjectRole
- jira:AddActorsToProjectRole
- jira:AddComment
- jira:AddComponent
- jira:AddFieldToScreen
- jira:AddPermission
- jira:AddUserToGroup
- jira:AddVersion
- jira:AssignIssue
- jira:AttachFile
- jira:CreateCustomField
- jira:CreateGroup
- jira:CreateIssue
- jira:CreatePermissionScheme
- jira:CreateProject
- jira:CreateProjectRole
- jira:CreateUser

- jira:DeleteProjectRole
- jira:GetDefaultRoleActors
- jira:GetProjectRole
- jira:GetProjectRoleActors
- jira:IsProjectRoleNameUnique
- jira:LinkIssue
- jira:Login
- jira:RemoveActorsFromDefaultProjectRole
- jira:RemoveActorsFromProjectRole
- jira:RemoveUser
- jira:RunSearchRequest
- jira:SelectComponentAssignees
- jira:TransitionWorkflow
- jira:UpdateProjectRole

jira:AddActorsToDefaultProjectRole

This tag will add 'actors' to the default membership for a given project role. Actors can be defined as groups or users, i.e. you can add both users and groups to a project role.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		This is the id of the project role.
actors	string		A comma delimited list of either users or groups
actortype	string		This defines the type 'actor' you are sending to the tag. Currently this field can contain either 'atlassian-user-role-actor' for users, or 'atlassian-group-role-actor' for groups.

Examples

Adding a list of default users or groups to a project role

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:AddActorsToDefaultProjectRole projectroleid="1" actors="fred,admin,tom"
        actortype="atlassian-user-role-actor" />
</JiraJelly>
```

jira:AddActorsToProjectRole

This tag will add 'actors' to a given project role for a particular project. Actors can be defined as groups or users, ie you can add both users and groups to a project role.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		This is the id of the project role.
actors	string		This a comma delimited list of either user names or group names
actortype	string		This defines the 'actor' type. Currently this field can contain either 'atlassian-user-role-actor' for users, or 'atlassian-group-role-actor' for groups.
projectkey	string		This is the key of the project you wish to add users or groups to for the specified role.

Examples

Adding a list of users or groups to a project role

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:AddActorsToProjectRole projectroleid="1" actors="jira-administrators,jira-users"
        projectkey="MKY" actortype="atlassian-group-role-actor" />
</JiraJelly>
```

jira:AddComment

This function adds a comment to an Issue.

Attributes

Attribute Name	Type	Default Value	Description
issue-key	string		The issue to add the comment to (required).
commenter	string	Currently logged in user	Username of the user to make the comment (Must have browse and comment permissions).
comment	string		Comment to be added to the issue (required).
groupLevel	string	none	Name of group that can see this comment. NOTE: If this is specified you can not specify the roleLevel parameter.
roleLevel	string	none	Name or Id of Project Role that can see this comment. NOTE: If this is specified you can not specify the groupLevel parameter.
created	string	Current Date/Time	Date/Time the Comment was created in format yyyy-MM-dd hh:mm:ss.0
updated	string	Current Date/Time	Date/Time the Comment was last updated in format yyyy-MM-dd hh:mm:ss.0. This can be used if you are trying to import a comment with specific pre-existing values.
editedBy	string	Currently logged in user	Username of the user who last updated the comment. This can be used if you are trying to import a comment with specific pre-existing values.
tweakIssueUpdateDate	boolean	true	If an updated date is provided, the issue's updated date will be updated with that value. If the tweakIssueUpdateDate parameter is set to false, the issue's updated timestamp will be left untouched.

Examples

Create comment

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:AddComment comment="Issue comment" issue-key="ABC-1"
groupLevel="admin-group"/>
</JiraJelly>
```

Create Issue and Comment

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
  <jira:CreateIssue project-key="TP" issueType="Bug" summary="Issue summary" issueKeyVar="key"/>
  <jira:AddComment issue-key="${key}" comment="A comment on ${key}"/>
</JiraJelly>
```

jira:AddComponent

Adds a component to a project.

Attributes

Attribute Name	Type	Default Value	Description
project-key	string		The key of the project you want to add the component to (not required if nested inside atag).
name	string		Name of the component (required).
description	string		Description of the component.
componentLead	string		The username of the Component's lead. Leave blank for no lead.

Examples

Create Component

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:AddComponent project-key="ABC" name="Comp 1" description="Comp 1 description"/>
</JiraJelly>
```

Create Component in a Project

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateProject key="ABC" name="A Project" lead="logged-in-user">
<jira:AddComponent name="Comp 1"/>
</jira:CreateProject>
</JiraJelly>
```

Create Component with a Component Lead

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:AddComponent project-key="ABC" name="Comp 1" description="Comp 1 with lead"
componentLead="user-name"/>
</JiraJelly>
```

jira:AddFieldToScreen

Adds a field to a specific tab on a screen. Can also specify in which position to insert the field.

Attributes

Attribute Name	Type	Default Value	Description
fldId	string		Field ID of the field to add (required). e.g. "description", "duedate", etc.
screen	string		Screen ID or Name (required). e.g. "1" or "Default Screen".
tab	string	0	Tab ID or Name. e.g. "0" or "Field Tab".
fieldPosition	int	last position	Position to insert the field into. Range of values is from 1 to the number of fields on the screen.

Examples

Add Fields to a Screen

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<!-- Adds 'description' field to the 'Field Tab' on 'Default Screen' -->
<jira:AddFieldToScreen fieldId="description" screen="Default Screen" tab="Field Tab"/>

<!-- Adds 'duedate' field to same screen as above. duedate is inserted in position 1 -->
<jira:AddFieldToScreen fieldId="duedate" screen="1" tab="0" fieldPosition="1"/>
</JiraJelly>
```

Create a new Customfield and Add it to a Screen

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateCustomField fieldType="cascadingselect"
fieldScope="issuetype"
fieldName="Issue cascadingselect Bug"
issueType="Bug"
description="Bank have requested Y2K fixes to be sent as an EBF."
searcher="cascadingselectsearcher"
customFieldIdVar="customField"
>
<jira:AddCustomFieldSelectValue value="Parent 1" />
<jira:AddCustomFieldSelectValue value="Parent 2">
<jira:AddCustomFieldSelectValue value="Child 1" />
<jira:AddCustomFieldSelectValue value="Child 2" />
</jira:AddCustomFieldSelectValue>
<jira:AddCustomFieldSelectValue value="Parent 3" />
</jira:CreateCustomField>

<jira:AddFieldToScreen screen="Default Screen" fieldId="${customField.getId()}"/>
</JiraJelly>
```

jira:AddPermission

Grants permissions within a permission scheme. Often nested within a JIRADOC:CreatePermissionScheme tag.

Attributes

Attribute Name	Type	Default Value	Description
schemeId	string		If not nested in a CreatePermissionScheme tag, specifies the scheme Id to add the permission to (0 is the default permission scheme).
permissions	required string		A comma-separated list of permissions to grant: **String — Permission** • Project — Administer projects • Browse — Browse projects • Create — Create issues • Edit — Edit issues • ScheduleIssue — Schedule issues • Move — Move issues • Assign — Assign issues • Assignable — Assignable user • Resolve — Resolve issues • Close — Close issues • ModifyReporter — Modify reporter • Comment — Add comments • CommentEditAll — Edit all comments • CommentEditOwn — Edit own comments • CommentDeleteAll — Delete all comments • CommentDeleteOwn — Delete own comments • Delete — Delete issues • Work — Work on issues • WorklogEditAll — Edit all worklogs • WorklogEditOwn — Edit own worklogs • WorklogDeleteOwn — Delete own worklogs • WorklogDeleteAll — Delete all worklogs • Link — Link issues • Attach — Create attachments • AttachDeleteAll — Delete all attachments • AttachDeleteOwn — Delete own attachments • ViewVersionControl — View version control • ViewVotersAndWatchers — View voters and watchers • ManageWatcherList — Manage watcher list • SetSecurity — Set issue security level
type	string		Type of recipient for the permission: • group • projectrole • user • lead • assignee • reporter • userCF • groupCF
group	string		If type is 'group' (or type is unspecified), specifies the group name to grant permissions to.
projectroleid	int		If type is 'projectrole', specifies the id of the projectrole to grant permissions to.
user	string		If type is 'user', specifies the user name to grant permissions to.
userCF	string		If type is 'userCF', specifies the id of a User custom field, e.g. 'customfield_10000', identifying the user to be granted the permission.
groupCF	string		If type is 'groupCF', specifies the id of a group-selecting custom field (e.g. a select-list with group names as values) whose members should be granted this permission. E.g. 'customfield_10000'.

Examples

Grant permissions to jira-users and jira-developers in a new permission scheme
(See also the JIRADOC:example scripts)

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
  <jira:CreatePermissionScheme name="New Permission Scheme">
    <jira:AddPermission group="jira-users" permissions="Browse,Create,Comment,Attach"
type="group"/>
    <jira:AddPermission group="jira-developers"
permissions="Move,Assignable,Link,ViewVersionControl" type="group"/>
  </jira:CreatePermissionScheme>
</JiraJelly>
```

Grant issue reporters the ability to edit/delete their own issues, in a new permission scheme

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib">
  <jira:CreatePermissionScheme name="New Permission Scheme">
    <jira:AddPermission type="reporter" permissions="Delete, Edit"/>
  </jira:CreatePermissionScheme>
</JiraJelly>
```

Make projects using default permission scheme visible to certain users

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib">
  <jira:AddPermission schemeId="0" permissions="Browse" type="user" user="johnc"/>
  <jira:AddPermission schemeId="0" permissions="Browse" type="user" user="ebf"/>
</JiraJelly>
```

Granting a group selector custom field's members the ability to assign/be assigned the issue.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
  <jira:AddPermission schemeId="10164" type="groupCF" groupCF="customfield_10000"
                      permissions="Assign,Assignable" />
</JiraJelly>
```

jira:AddUserToGroup

Makes a user a member of a Group. Adds the username and/or group name into the context if specified.

Attributes

Attribute Name	Type	Default Value	Description
username	string		Username to add to Group (required if not in atag).
group-name	string		Group to add User to (required if not in atag). Note: if the group has the 'JIRA System Administrators' global permission, and the logged-in user does not, an error message will be displayed and the operation will not succeed.

Username is set in the context if specified in the tag.Group name is set in the context if specified in the tag.h4. Examples

Add User to Group

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:AddUserToGroup username="new-user" group-name="new-group"/>
</JiraJelly>
```

Add New User to Group

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateUser username="new-user" password="password" confirm="password"
fullname="Full name" email="test@test.com">
<jira:AddUserToGroup group-name="new-group"/>
</jira:CreateUser>
</JiraJelly>
```

Add User to New Group

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateGroup group-name="new-group">
<jira:AddUserToGroup username="new-user"/>
</jira:CreateGroup>
</JiraJelly>
```

Add New User to New Group

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateUser username="new-user" password="password" confirm="password"
fullname="Full name" email="test@test.com"/>
<jira:CreateGroup group-name="new-group">
<jira:AddUserToGroup/>
</jira:CreateGroup>
</jira:CreateUser>
</JiraJelly>
```

jira:AddVersion

Adds a version to a project.
Attributes

Attribute Name	Type	Default Value	Description
project-key	string		The key of the project you want to add the component too (not required if nested inside atag).
name	string		Name of the version (required).
description	string		The description of the version.
releaseDate	string		The release date of the version.
schedule	string		Schedule of the version.

Examples

Create a Version

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:AddVersion project-key="ABC" name="Ver 1"/>
</JiraJelly>
```

Create a Version in a Project

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateProject key="ABC" name="A Project" lead="logged-in-user">
<jira:AddVersion name="Ver 1"/>
</jira:CreateProject>
</JiraJelly>
```

jira:AssignIssue

Assigns an issue to a user.

Attributes

Attribute Name	Type	Default Value	Description
key	string		Key of the issue to assign.
assignee	string		User to assign issue to.

Examples

Create and assign issue

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
  <jira:CreateIssue project-key="TST" summary="My Issue summary" issueKeyVar="keyvar"/>
  <jira:AssignIssue key="${keyvar}" assignee="testuser"/>
</JiraJelly>
```

jira:AttachFile

Attaches a file to an issue.

Attributes

Attribute Name	Type	Default Value	Description
key	string		Key of the issue to attach the file to. (Required)
filepath	string		Path (on the server) of the file to attach. (Required)
option	string	add	Behaviour when a file with same name is already attached. (Optional). The options are: • **skip** — do not attach file if a file with this name is already attached. • **override** — overwrite existing attached file • **add** — add the file as another attachment
created	string	Current Date/Time	Date/Time the attachment was created, in format yyyy-MM-dd hh:mm:ss.0 (Optional)

Examples

Adding an attachment

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
  <jira:AttachFile key="TST-1" filepath="/tmp/somefile" option="override"/>
</JiraJelly>
```

jira:CreateCustomField

The tag creates a new Custom Field. Only System custom fields can be added with Jelly tags.

Attributes

Attribute Name	Type	Default Value	Description
fieldType	string		Field type as appears as the key in the plugin descriptor
fieldScope	string		One of global, project or issuetype
fieldName	string		Name of custom field
projectKey	string		Key of the related project. Only valid for scope "project"
issueType	string		Issue type. Only valid for scope "issuetype"
description	string		Description of the field to be displayed when adding a value
searcher	string		A valid related custom field searcher
customFieldIdVar	string		The name of the variable to place the new custom field.

Examples

Create Cascading Custom Field
`jira:AddCustomFieldSelectValue` subtag can be used to add values for select lists. They can also be nested for Cascading Select Lists.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateCustomField fieldType="cascadingselect"
fieldScope="issuetype"
fieldName="Issue cascadingselect Bug"
issueType="Bug"
description="Bank have requested Y2K fixes to be sent as an EBF."
searcher="cascadingselectsearcher"
>
<jira:AddCustomFieldSelectValue value="Parent 1" />
<jira:AddCustomFieldSelectValue value="Parent 2">
<jira:AddCustomFieldSelectValue value="Child 1" />
<jira:AddCustomFieldSelectValue value="Child 2" />
</jira:AddCustomFieldSelectValue>
<jira:AddCustomFieldSelectValue value="Parent 3" />
</jira:CreateCustomField>
</JiraJelly>
```

jira:CreateGroup

Creates a Group in JIRA.

Attributes

Attribute Name	Type	Default Value	Description
group-name	string		Name of group to create (required).

Context Variables

Context Variable	Type	Description
jelly.group.name	string	Name of group being created.

Examples

Create Group

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateGroup group-name="new-group"/>
</JiraJelly>
```

jira:CreateIssue

This tag creates a new issue in JIRA and places the issue id in the context.

Attributes

Attribute Name	Type	Default Value	Description
project-key	string		Key of the project to add the issue to (required if not nested in atag).
issueType	string	First issue type	The string name of the Issue Type this issue should be created for (e.g. Bug).
summary	string		Summary of the issue being created (required).
priority	string	First priority	The string name of the Priority (e.g. Major).
components	string		The string name of the Component.
versions	string		The string name of the Affected Version.
fixVersions	string		The string name of the Fix For Version.
assignee	string		The username of the user to assign this issue to (logged in user requires the assign issue permission and user specified requires the assignable permission). Set to "-1" for Automatic assignment.

reporter	string	(see description)	The username of the user who is reporting this issue. The user is logged in and then the issue is created. The user is logged out again when the Create Issue tag closes. If the logged in user does not have Modify Reporter privilege, then the default value of this attribute is the username of the logged in user. If, however, the logged in user does have Modify Reporter privilege, there is not a default value, and this attribute is mandatory. See JRA-12984 for further explanation. (Broken? See JRA-5620.)
environment	string		Description of the environment.
description	string		Detailed description of the issue.

duedate	string		Due date of the issue. The format required is the current JIRA date format.
			Note: As the default JIRA date format is locale-specific (e.g. 12/Jan/05), you may wish to use the yyyy-mm-dd ISO format instead. To do this, set the following in WEB-INF/classes/jira-application.properties:
			`jira.date.picker.java.format = yyyy-MM-d`
			`jira.date.picker.javascript.format = %Y-%m-%e`

created	string	Current Date/Time	Date/Time the Issue was created in format yyyy-MM-dd hh:mm:ss.0
updated	string	Current Date/Time	Date/Time the Issue was updated in format yyyy-MM-dd hh:mm:ss.0
issueIdVar	string		The name of the variable to place the ID of the new Issue.
issueKeyVar	string		The name of the variable to place the Key of the new Issue.
duplicateSummary	string		Setting this attribute to 'ignore' will allow Issue with the same summary to be created.
security-level	string		Sets the security level of an issue. Value is the name of a level, e.g. 'Secret'.

Examples

Create Issue

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateIssue project-key="ABC" assignee="-1" summary="Issue summary">
<!-- other jelly tags -->
</jira:CreateIssue>
</JiraJelly>
```

Create Issue from Project

This example is more complicated as a permission scheme is required for the project before an issue can be created.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateProject key="ABC" name="A Project" lead="logged-in-user">
<jira:CreatePermissionScheme name="admin-scheme">
<jira:AddPermission permissions="Assignable,Browse,Create,Assign"
type="group"/>
<jira:SelectProjectScheme/>
</jira:CreatePermissionScheme>
<jira:CreateIssue summary="Issue summary">
<!-- other jelly tags -->
</jira:CreateIssue>
</jira:CreateProject>
</JiraJelly>
```

Create Issue with Custom Field values

Use the subtag `jira:AddCustomFieldValue`

Attribute Name	Type	Description
id	long	ID of the custom field with the customfield_ prefix
value	string	string representation of the custom field value. Note that this may be different to the displayed value (e.g. The project picker uses the project id as the String value but displays the project name)

key	string	Key is used for multi-dimensional data. Currently, only Cascading selects supports its use. Omit to specify the value of parent, use "1" as the value for child
name	String	**deprecated** Name of the custom field.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateIssue project-key="ABC" summary="Issue summary">
<jira:AddCustomFieldValue id="customfield_10000" value="field value"/>
<jira:AddCustomFieldValue name="Environment Select list" value="Windows XP"/>

<!-- For Cascading Selects : Note also that the value for cascading selects is the optionId-->
<jira:AddCustomFieldValue id="customfield_10001" value="Parent Option Id" />
<jira:AddCustomFieldValue id="customfield_10001" value="Child Option Id" key="1" />

<!-- For Version Pickers and Single Version Pickers : Note also that the value for version pickers
is the versionId-->
<jira:AddCustomFieldValue id="customfield_10002" value="Version Id"/>

<!-- For Multi Selects -->
<jira:AddCustomFieldValue id="customfield_10003" value="Value 1" />
<jira:AddCustomFieldValue id="customfield_10003" value="Value 2" />

<!-- For Multi User Pickers : Note also that the value for multi user pickers is a comma separated
list of users-->
<jira:AddCustomFieldValue id="customfield_10004" value="User 1,User 2" />

</jira:CreateIssue>
</JiraJelly>
```

Using the name attribute has been **deprecated.** While it will work in 3.0 its use is discouraged.

Note:

- To view the <customFieldId>,
  1. Navigate to Administration -> Issue Fields -> Custom Fields
  2. Hover your cursor over the "Configure" link of the custom field
  3. You can view the <customFieldId> in the status bar of your browser
- To view the "Parent Option Id" and "Child Option Id" for Cascading Select fields,
  1. Navigate to Administration -> Issue Fields -> Custom Fields -> Configure -> Edit Options -> Edit
  2. You can view the <selectedParentOptionId> ("Parent Option Id") and <selectedValue> ("Child Option Id") in the status bar of your browser

jira:CreatePermissionScheme

Creates a Permission Scheme

Attributes

Attribute Name	Type	Default Value	Description
name	required string		Name of the permission scheme.
description	string		Permission scheme description.

Context Variables

Context Variable	Type	Description
jelly.permission.scheme.id	string	Id of the created permission scheme

jira:CreateProject

This tag creates a new project in JIRA and places the project id in the context.

Attributes

Attribute Name	Type	Default Value	Description
key	string		The project key used to create Issue Keys (required).
name	string		The name of the project (required).

lead	string		The username of the user that is the project lead (required).
url	string		The URL of the site for this project.
description	string		The description of this project.

Context Variables

Context Variable	Type	Description
jelly.project.id	string	Id of the Project that was created.
jelly.project.key	string	Key of the Project that was created.

Examples

Create Project

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateProject key="ABC" name="A Project" lead="a-user">
<!-- other jelly tags -->
</jira:CreateProject>
</JiraJelly>
```

jira:CreateProjectRole

This tag will create a project role with the given name and description.

Attributes

Attribute Name	Type	Default Value	Description
name	string		The name for the project role you will be creating
description	string		The description for the project role you will be creating

Context Variables

Context Variable	Type	Description
jelly.role.id	Long	The id of the project role
jelly.role.name	string	The name of the project role
jelly.role.description	string	The description of the project role

Examples

Creating a new project role

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:CreateProjectRole name="lion-tamer" description="tames the lions">
        ${jelly.role.id} ${jelly.role.name} ${jelly.role.description}
    </jira:CreateProjectRole>
</JiraJelly>
```

jira:CreateUser

Creates a user in JIRA and places their username in the context.

Attributes

Attribute Name	Type	Default Value	Description
username	string		Username of the user being created (required).
password	string		User's password. If the password field is left blank, a random password will be auto-generated.
confirm	string		Confirmation of users password (required).

fullname	string		Descriptive name of the user (required).
email	string		Email address of the user (required).
sendEmail	boolean	false	If provided, specifies whether to send a confirmation email.

Context Variables

Context Variable	Type	Description
jelly.new.username	string	Username of the user being created.

Examples

Create User

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateUser username="new-user" password="password" confirm="password"
fullname="Full name" email="test@test.com"/>
</JiraJelly>
```

jira:DeleteProjectRole

This tag will delete the project role with the given id.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		The id of the project role you want to delete.
confirm	string		To delete the project role this value must be set to 'true'.

Examples

Deleting a project role from JIRA

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:DeleteProjectRole projectroleid="1" confirm="true" />
</JiraJelly>
```

jira:GetDefaultRoleActors

This tag will return a ProjectRoleActors object for a given project role for a particular project. This object carries the members of a project role, i.e. users and/or groups. To get the collection of users in this object, use the expression ${roleactors.users} where roleactors is the variable name of the object. For more information on the RoleActors object, consult the JIRA API.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		The id of the project role you want to query
var	string		The name of the variable you wish to have the returned role actors placed into

Examples

Returning a List of role actors and iterating over the users in each of these actors.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib" xmlns:core="jelly:core">
    <jira:GetDefaultRoleActors projectroleid="1" var="roleactors" >
        <core:forEach var="actor" items="${roleactors.users}">
            ${actor.name}
        </core:forEach>
    </jira:GetDefaultRoleActors>
</JiraJelly>
```

jira:GetProjectRole

This tag will return the project role with the given id.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		The id of the project role you want
var	string		The name of the variable you wish to have the project role assigned to

Examples

Returning a project role

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:GetProjectRole projectroleid="1" var="role" >
            ${role.name}
    </jira:GetProjectRole>
</JiraJelly>
```

jira:GetProjectRoleActors

This tag will return a ProjectRoleActors object for the given project role and project. This object is a placeholder for the internal members of a project role, i.e. users and/or groups. To get the collection of users in this object, use the expression ${roleactors.users} where roleactors is the variable name of the object. For more information on the RoleActors object, consult the JIRA API.

Attributes

Attribute Name	Type	Default Value	Description
projectkey	string		The key of the project you want to query
projectroleid	int		The id of the project role you want to query
var	string		The name of the variable you want the returned 'role actors' object assigned to

Examples

Return a list of users for a given 'Role Actors' object

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib" xmlns:core="jelly:core">
    <jira:GetProjectRoleActors projectkey="MKY" projectroleid="1" var="roleactors" >
        <core:forEach var="actor" items="${roleactors.users}">
            ${actor.name}
        </core:forEach>
    </jira:GetProjectRoleActors>
</JiraJelly>
```

jira:IsProjectRoleNameUnique

This tag will return 'true' or 'false' to let you know if there is already a project role with the given name.

Attributes

Attribute Name	Type	Default Value	Description
name	string		The name of the project role
var	string		The name of the variable you want the returned result assigned to.

Examples

Determining if a project role is unique.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:IsProjectRoleNameUnique name="unique name" var="isUnique" >
        ${isUnique}
    </jira:IsProjectRoleNameUnique>
</JiraJelly>
```

jira:LinkIssue

This tag creates a link from one issue to another issue.

Attributes

Attribute Name	Type	Default Value	Description
key	string		The key of the issue to link from (origin of link - required)
linkKey	string		The key of the issue to link to (destination of link - required)
linkDesc	string		linkDesc is taken from the 'Inward Description' or the 'Outward Description' of the link. (required)

Examples

Create a Link between two existing issues

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:LinkIssue key="TST-1" linkKey="TST-2" linkDesc="duplicates"/>
</JiraJelly>
```

Create two issues and link them

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:CreateIssue project-key="HSP" assignee="-1" summary="Issue summary 1" reporter="admin"
issueKeyVar="issuekey1"/>
<jira:CreateIssue project-key="NDT" assignee="-1" summary="Issue summary 2" reporter="admin"
issueKeyVar="issuekey2"/>
<jira:LinkIssue key="${issuekey1}" linkKey="${issuekey2}" linkDesc="duplicates"/>
</JiraJelly>
```

jira:Login

This tag logs a user into JIRA using the username and password provided. Use this tag when you are running the Jelly script in a manner in which you are not logged in (for example, if you are running a JellyService instead of using the Jelly Runner), or if you want to run the Jelly script as a different user to the one you are logged in as.

Attributes

Attribute Name	Type	Default Value	Description
username	string		Username of the user to log in.
password	string		Password of the user to log in.

Context Variables

Context Variable	Type	Description
jelly.user	User	User logged in.
jelly.username	string	Username of the User logged in.

Examples

Login a user in with username and password and set in context

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:Login username="misc-user" password="password">
<!-- other jelly tags -->
</jira:Login>
</JiraJelly>
```

jira:RemoveActorsFromDefaultProjectRole

This tag will remove a list of role actors (i.e. users and/or groups) from the default membership of a given project role.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		The id of the project role you wish to remove default actors from
actors	string		A comma delimited list of users or groups you wish to remove from the default project role
actortype	string		The type of 'actor' you are removing. Currently the available options are 'atlassian-group-role-actor' or 'atlassian-user-role-actor'

Examples

Removing a list of groups from a default project role

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:RemoveActorsFromDefaultProjectRole projectroleid="1"
        actors="jira-administrators, jira-users" actortype="atlassian-group-role-actor" />
</JiraJelly>
```

jira:RemoveActorsFromProjectRole

This tag will remove a list of role actors from a given project role for a given project.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		The id of the project role you wish to remove members from
actors	string		A comma delimited list of users or groups you wish to remove from the project role
projectkey	string		The key of the project the project role is associated with
actortype	string		The type of 'actor' you are working with. Currently the available options are 'atlassian-group-role-actor' or 'atlassian-user-role-actor'

Examples

Removing a list of groups from a project role

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:RemoveActorsFromProjectRole projectroleid="1"
        actors="jira-administrators, jira-users" projectkey="MKY"
        actortype="atlassian-group-role-actor" />
</JiraJelly>
```

jira:RemoveUser

Removes an existing JIRA user by their username

Attributes

Attribute Name	Type	Default Value	Description
name	string		Username of the user to remove (required).

Examples

Remove User

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
<jira:RemoveUser name="existing-user"/>
</JiraJelly>
```

jira:RunSearchRequest

This tag runs a search request against JIRA using a predefined filter.
Note: This tag will return a GenericValue for each issue which matches the search request.
A GenericValue consists of key-value pairs, e.g.

```
[GenericEntity:Issue]
[created,2007-11-01 15:51:25.0]
[summary,Testing]
[component,null]
[workflowId,12530]
[timeoriginalestimate,null]
[fixfor,null]
[type,2]
[timespent,null]
[environment,Windows]
[resolution,null]
[status,1]
[updated,2007-11-01 15:51:25.0]
[timeestimate,null]
[id,11540]
[key,TSTA-5]
[duedate,null]
[description,Test]
[project,10063]
[reporter,admin]
[security,null]
[votes,0]
[assignee,null]
[priority,3]
```

To retrieve a value, e.g. key, you can call gv.getString("key"). For full details, see the OFBiz GenericValue API.

Attributes

Attribute Name	Type	Default Value	Description
filterid	int		The id of the filter which will be used to run the search request.
size-var	string		The variable that will hold the number of issues returned from the search request.
var	string		The variable that will hold the issues returned from the search request.

Examples

Running a search request and iterating through the keys of the returned issues

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:RunSearchRequest filterid="10524" var="issues" size-var="issuecount"/>
    <core:forEach var="issue" items="${issues}">
        ${issue.key}
    </core:forEach>
</JiraJelly>
```

jira:SelectComponentAssignees

Selects the default assignees for newly created issues of the component.

Attributes

Attribute Name	Type	Default Value	Description
project-key	string		The key of the project you want to add the component to (required).
componentName	string		Name of the component (required).
assigneeType	string		Default assignee type (required). ***Assignee Types:*** • projectDefault • componentLead • projectLead • unassigned

Examples

Select a Component Assignee

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib">
<jira:SelectComponentAssignees project-key="ABC" componentName="Comp 1"
assigneeType="componentLead"/>
</JiraJelly>
```

jira:TransitionWorkflow

Broken in 3.3 and 3.3.1 — see JRA-7690

This tag executes a workflow transition on an issue.

Please keep in mind that if you are specifying field attribute/value pairs in your Jelly tag then these fields MUST be on the associted workflow transition screen. If the field is not on the screen then the value will not be set on the issue. For example, if you want to set the resolution attribute in your Jelly XML then your transition MUST have a screen associated with it that includes the resolution field on that screen.

Attributes

Attribute Name	Type	Default Value	Description
user	string	Currently logged in user	Username of the user to execute the workflow transition. The user needs to have the adequate permissions to execute the transition. Please note that the permissions required also depend on the fields that are updated during the transition. (See other attributes below).
key	string		The key of the issue to execute the transition on.
workflowAction	string		The id or name of the workflow transition to execute. If the argument can be converted to a number it is assumed to be an id of the transition. Otherwise it is assumed to be a name.
resolution	string		The id or name of the resolution to set on the issue during the transition. Please note that the transition must expect the resolution to be updated, otherwise an error is generated if this attribute is supplied. If the argument can be converted to a number it is assumed to be an id of the resolution. Otherwise it is assumed to be a name.
assignee	string		The username of the user to assign an issue to during the transition. The "user" executing the transition must have permissions to assign issues if this attribute is supplied. Please note that the transition must expect the assignee to be updated, otherwise an error is generated if this attribute is supplied. Use value "-automatic-" to let JIRA assign the issue to the default assignee.
fixVersions	string		A comma separated list of version ids or names to set as "fix for" versions during the transition. The "user" executing the transition must have permissions to set "fix for" versions if this attribute is supplied. Please note that the transition must expect the "fix for" versions to be updated, otherwise an error is generated if this attribute is supplied. If a value in the provided comma separated list can be converted to a number it is assumed to be an id of a version. Otherwise it is assumed to be a name.
comment	string		The comment to add to the issue during the transition. The "user" executing the transition must have permissions to add comments and the transition must be expecting comments to be added during its execution for the comment to be added successfully.
groupLevel	string		The level for the comment. The level must be a name of a group the user is a member of. NOTE: If this is specified you can not specify the roleLevel parameter.
roleLevel	string		Name or Id of Project Role that can see this comment. NOTE: If this is specified you can not specify the groupLevel parameter.

Examples

Execute Workflow Transition

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
                    <jira:TransitionWorkflow key="TST-6" user="testuser" workflowAction="Resolve
issue"
                    resolution="fixed" fixVersions="version 1,version 3" assignee="-automatic-"
                    comment="Test comment" groupLevel="jira-developers" />
</JiraJelly>
```

jira:UpdateProjectRole

This tag will update the name and description for a given project role id.

Attributes

Attribute Name	Type	Default Value	Description
projectroleid	int		The id of the project role you want to query
name	string		The name you want the project role updated with
description	string		The description you want the project role updated with

Examples

Updating a project role

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
    <jira:UpdateProjectRole projectroleid="123" name="unique name"
        description="my project role is nice" />
</JiraJelly>
```

Beta Tags

There are also a number of BETA tags that have not been fully tested or documented. The following list contains the tags and the attributes that can be passed to them:

- AddIssueSecurity
  - schemeId (required)
  - security (required)
  - type (required)
- AddIssueSecurityLevel
  - name (required)
  - description (required)
  - Output
    - jelly.issue.scheme.level.id
- CreateIssueSecurityScheme
  - name (required)
  - description (required)
  - Output
    - jelly.issue.scheme.id
- LoadManager
  - var (variable to put manager in)
  - manager (name of manager e.g. IssueManager)
- LoadProject
  - var (variable to put project in)
  - project-name (name of project)
- RemoveGroup
  - name (required)
- RemovePermissionScheme
  - schemeId (required)
  - confirm (required))
- RemoveProject
  - pId (required)
- SelectProjectScheme
  - projectKey (required)
  - permission-scheme (Name of permission scheme)or
  - issue-scheme (Name of issue security scheme)
- StringContains
  - value (String to look in)
  - possiblyContains (String to look for)
  - doesContain (true or false) if value contains possiblyContains == doesContain, the inside of the tag is executed.

If you would like more information on how to use the Beta tags, please read the source and/or post to the JIRA Development Forum.

Sample scripts

Creating a new Project

To properly partition projects, one needs a permission scheme per project, and project-specific groups to allocate permissions to. Setting up a new project can be a time-intensive process. The following sample Jelly scripts automate this:
This script might be used for a publicly visible project:

```
<?xml version="1.0"?>
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib" xmlns:j="jelly:core">

  <j:set var="name" value="Test Project"/>
  <j:set var="key" value="TEST"/>
  <j:set var="lowerkey" value="test"/>
  <j:set var="lead_username" value="joe"/>
  <j:set var="lead_password" value="joe"/>
  <j:set var="lead_fullname" value="Joe Bloggs"/>
  <j:set var="lead_email" value="joe@example.com"/>
  <j:set var="url" value="http://example.com/TestProj"/>

  <jira:CreateUser username="${lead_username}" password="${lead_password}"
confirm="${lead_password}"
    fullname="${lead_fullname}" email="${lead_email}"/>
  <jira:CreateGroup group-name="${lowerkey}-developers">
    <jira:AddUserToGroup username="${lead}"/>
  </jira:CreateGroup>

  <jira:CreateProject key="${key}" name="${name}" url="${url}" lead="${lead_username}">
    <jira:CreatePermissionScheme name="${name} permissions">
      <jira:AddPermission type="reporter" permissions="Close"/>
      <jira:AddPermission group="jira-administrators" permissions="Close,Delete" type="group"/>
      <jira:AddPermission group="jira-users" permissions="Create,Edit,Comment,Link,Attach"
type="group"/>
      <jira:AddPermission group="${lowerkey}-developers"
        permissions="Project,ScheduleIssue,Move,Assign,Assignable,Resolve,Close,Work"
type="group"/>
      <jira:AddPermission group="Anyone" permissions="Browse,ViewVersionControl"/>
      <jira:SelectProjectScheme/>
    </jira:CreatePermissionScheme>
  </jira:CreateProject>
</JiraJelly>
```

This script is more complicated, with multiple groups per project:

```
<?xml version="1.0"?>
<!-- This script handles some of the administrative chores required when adding
a new project to JIRA. It creates the project, groups, permission scheme, and gives
groups the relevant permissions in the permission scheme. -->
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib" xmlns:j="jelly:core">

<!-- Name of the project to create -->
<j:set var="name" value="Jelly Test Project"/>
<!-- Key for the new project -->
<j:set var="key" value="TEST"/>
<!-- Existing user who will become the project lead (default assignee) -->
<j:set var="admin" value="admin"/>

<jira:CreateGroup group-name="${key}-users"/>
<jira:CreateGroup group-name="${key}-developers"/>
<jira:CreateGroup group-name="${key}-managers"/>
<jira:CreateGroup group-name="${key}-bizusers"/>
<jira:CreateGroup group-name="${key}-qa"/>

<jira:CreateProject key="${key}" name="${name}" lead="${admin}">
<jira:CreatePermissionScheme name="${key} Permission Scheme">
<jira:AddPermission type="reporter" permissions="Edit"/>
<jira:AddPermission type="assignee" permissions="Resolve"/>
<jira:AddPermission group="jira-administrators" permissions="Project,Delete" type="group"/>
<jira:AddPermission group="${key}-users" permissions="Browse,Create,Comment,Attach" type="group"/>
<jira:AddPermission group="${key}-developers"
permissions="Move,Assignable,Link,ViewVersionControl"
    type="group"/>
<jira:AddPermission group="${key}-managers"
permissions="Edit,Assign,Assignable,Resolve,Close,Delete"
    type="group"/>
<jira:AddPermission group="${key}-bizusers" permissions="Assignable" type="group"/>
<jira:AddPermission group="${key}-qa" permissions="Assignable" type="group"/>
<jira:AddPermission group="opsmgrs" permissions="Browse,Edit,Assignable,Comment" type="group"/>
<jira:AddPermission group="dba-user-group" permissions="Browse,Assign,Assignable,Comment"
type="group"/>
<jira:AddPermission group="help-desk-group" permissions="Browse,Assign,Assignable,Comment"
type="group"/>
<jira:AddPermission group="webadmin-group" permissions="Browse,Assign,Assignable,Comment"
type="group"/>
<jira:AddPermission group="unix-admin-group" permissions="Browse,Assign,Assignable,Comment"
type="group"/>
<jira:SelectProjectScheme/>
</jira:CreatePermissionScheme>
</jira:CreateProject>
</JiraJelly>
```

For a list of projects, perform a project-specific operation.

This script iterates through a (comma-separated) list of projects, creates a project-specific group, and adds a user to that group.

```
<?xml version="1.0"?>
<!-- Jelly script to create 'support' group per project -->
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib" xmlns:util="jelly:util"
xmlns:j="jelly:core">
<util:tokenize var="projects"
delim=",">ARM,QWI,DWI,DBOR,DBSQ,LYX,MMM,MOI,TPAI,SEP,AMR,SLA,TP,TRBC,YRD</util:tokenize>
<j:forEach var="proj" items="${projects}">
<jira:CreateGroup group-name="${proj}-support"/>
<jira:AddUserToGroup username="jeff" group-name="${proj}-support"/>
</j:forEach>
</JiraJelly>
```

Create a user, issue, and assign the issue to the user

The following script creates a user (called `new-user`), creates a new issue, adds the user to the `jira-developers` group and assigns the issue to the user. It illustrates the use of context variables.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">

<jira:CreateUser username="new-user" password="password" confirm="password"
    fullname="Full name" email="test@test.com"/>
Username is ${jelly.new.username}
 <jira:CreateIssue project-key="TP" summary="New issue summary" issueKeyVar="ik"/>
 <jira:AddUserToGroup username="new-user" group-name="jira-developers"/>
 <jira:AssignIssue key="${ik}" assignee="${jelly.new.username}"/>

</JiraJelly>
```

Assigning and Starting Progress

Here we create an issue, assign it to 'bob' (who must be in `jira-developers`), and start progress:

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">

 <jira:CreateIssue project-key="TP" summary="New issue" issueKeyVar="ik"/>
 <jira:AssignIssue key="${ik}" assignee="bob"/>
 <jira:TransitionWorkflow key="${ik}" user="bob" workflowAction="Start Progress" />
</JiraJelly>
```

Moving unreplied-to issues into an 'Inactive' state

When JIRA is used for interacting with customers, this script is useful for finding issues which are awaiting customer response, and haven't been responded to in a while. It moves such issues into an 'Inactive' state.

You would typically invoke this script periodically with the Jelly Service.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib"
xmlns:core="jelly:core" xmlns:log="jelly:log" >
<jira:Login username="customersupport" password="XXXXXX">
        <log:warn>Running Inactivate issues service</log:warn>
        <core:set var="comment">This issue has not been updated for 5 business days.

If you have an update, please use "Add Comments For Vendor" action to let us know.
If you need more time to gather information please let us know and we will 'freeze' this issue.
If you have no other questions, please Close this issue.

If no update is received in the next 5 business days, this issue will be automatically closed.

Thank you,

  The Support Team</core:set>
        <core:set var="workflowStep" value="Mark Inactive" />
        <core:set var="workflowUser" value="customersupport" />

        <!-- Run the SearchRequestFilter -->
        <jira:RunSearchRequest filterid="11505" var="issues" />

        <core:forEach var="issue" items="${issues}">
                <log:warn>Inactivating issue ${issue.key}</log:warn>
                <jira:TransitionWorkflow key="${issue.key}" user="${workflowUser}"
workflowAction="${workflowStep}" comment="${comment}"/>
        </core:forEach>
</jira:Login>
</JiraJelly>
```

Where:

- **workflowStep** is the name of a workflow transition, e.g "Close Issue", "Start Progress", just as they appear in the left-hand menu on the issue screen.
- **workflowUser** is the user to run the transition as
- **filterid** is the id of a saved search (filter), which finds issues needing to be inactivated (transitioned). This ID can be discovered from the filter URL on the "Manage" tab in "Find issues".

The JIRA Toolkit is useful in conjuction with this script, to find issues awaiting customer response.

JIRA Toolkit (Customer Support Extensions)

As an extension to JIRA, Atlassian have developed a set of JIRA custom fields, collectively called the "JIRA Toolkit". It can be found online at:

http://confluence.atlassian.com/display/JIRAEXT/JIRA+Toolkit

These custom fields are particularly useful in customer-facing JIRA instances. They were initially developed for use in Atlassian's own JIRA Support installation at http://support.atlassian.com. See the JIRA Toolkit documentation for details.

Developer Guides

The following Tutorials can be found in the JIRA Development Hub:

- Jelly Examples
- JIRA RPC Services
    - Creating a SOAP Client
    - Creating a XML-RPC Client
    - Enabling the RPC plugin
    - JIRA XML-RPC Overview
    - Frequently Asked RPC Questions and Known Issues
- Adding your own email handling classes
- Modifying JIRA Templates and JSPs
    - Adding Custom Fields to Email
    - Adding Custom Field to Issue Summary
    - Adding JavaScript to all pages for Google Analytics
    - Contents of the Velocity Context
    - Creating a Custom Release Notes Template Containing Release Comments
    - Customising interface based on user's role
    - Customising JIRA Excel Output
    - Customizing text
    - Mapping custom events to new email templates
    - Velocity Context for Email Templates
- JIRA Custom Installer Guide
- JIRA Plugin Tutorials
    - Available Permissions
    - How to create a new Custom Field Type
    - How to create Custom Workflow Elements for JIRA 3
- How to create a JIRA Report
- JIRA REST API (Alpha) Tutorial

Building JIRA from Source

Commercial users receive access to JIRA's source code. This topic explains how to build this source code back into a deployable JIRA application.

Building JIRA from source is only necessary if need to make modifications to JIRA's source code. You should not need to rebuild JIRA if:

- You need to change JSP files.
- Create a JIRA plugin that adds functionality to JIRA. For more information, read the JIRA Plugin Guide.
  (Often, changes and enhancements to JIRA's functionality can be made via a JIRA plugin without requiring core JIRA source code modifications.)

On this page:

- Building a JIRA WAR file from a JIRA Source release
- Developing using the IDE Connectors
- Obtaining the source of JIRA's dependencies
- Compiling Single Class Patches

Building a JIRA WAR file from a JIRA Source release

1. Ensure you have JDK 1.6 or higher *and* have a Subversion client installed.

2. Download Maven 2.1.0 from the Apache archives of the Maven website.
   We have not yet tested building JIRA from source using Maven 3 at this time.

3. Extract Maven to an appropriate location on your operating system. For example,
   On Windows, extract to:

   ```
   C:\apache-maven-2.1.0
   ```

   On Mac/Linux, extract to:

```
/usr/local/apache-maven-2.1.0
```

4. Set the M2_HOME environment variable. For example,
 On Windows:

```
> set M2_HOME=C:\apache-maven-2.1.0
```

Alternatively, the Windows environment variables can be configured by choosing `My Computer >> Properties >> Advanced >> Environment Variables`.

On Mac/Linux:

```
export M2_HOME=/usr/local/apache-maven-2.1.0
```

5. Add Maven's bin directory to your path. For example,
 On Windows:

```
> set PATH=%M2_HOME%\bin
```

You can set this via `My Computer >> Properties >> Advanced >> Environment Variables` again if you wish.

On Mac/Linux:

```
export PATH=$PATH:$M2_HOME/bin
```

6. Install all of the following restricted third party (`.jar`) libraries to your local Maven repository (`.m2`), ensuring that you download the version specified below. All of these libraries are required to successfully build JIRA from source. If any of these libraries are missing, the build process will fail.
 Due to licensing restrictions, we are unable to distribute these third party libraries from Atlassian's public Maven repository. If you have built previous versions of JIRA from source, you may already have some of these libraries in your local Maven repository.

Libraries	Maven groupId and artifactId	Version	Download URL
activation	javax.activation:activation	1.0.2	http://repository.jboss.org/maven2/javax/activation/activation/1.0.2/
jms	javax.jms:jms	1.1	http://repository.jboss.org/nexus/content/groups/public-jboss/javax/jms/jms/1.1/
jmxri and jmxtools	com.sun.jmx:jmxri and com.sun.jdmk:jmxtools	1.2.1	http://www.oracle.com/technetwork/java/javase/tech/download-jsp-141676.html (Download 'JMX 1.2.1 Reference Implementation')
jndi	jndi:jndi	1.2.1	http://java.sun.com/products/jndi/downloads/index.html
jta	jta:jta	1.0.1B	http://www.oracle.com/technetwork/java/javaee/jta/index.html (Download 'Class Files 1.0.1B')
mail	javax.mail:mail	1.3.2	http://www.oracle.com/technetwork/java/javamail-1-3-2-138617.html

To install these restricted third party libraries:

a. Download each one (from its link above) into a directory on your file system, for example, `downloads` in your home directory area.
 The **jndi**, **jta** and **mail** libraries are downloaded as `.zip` files and before you can install these libraries into your local Maven repository, either:
 - a key `.jar` file must be extracted from them or
 - they need to be in `.jar` form.

 i. For **jmxri** and **jmxtools**:
 - **On Windows:**

Use Windows Explorer to enter the `downloads` directory and extract the `jmxri.jar` and `jmxtools.jar` files from the `jmx-1_2_1-bin\lib` subdirectory of the `jmx-1_2_1-ri.zip` file.
- **On Linux:**

```
cd $HOME/Downloads
unzip jmx-1_2_1-ri.zip jmx-1_2_1-bin/lib/jmxri.jar
jmx-1_2_1-bin/lib/jmxtools.jar
```

ii. For **jndi**:
- **On Windows:**
  Use Windows Explorer to enter the `downloads` directory and extract the `jndi.jar` file from the `lib` subdirectory of the `jndi-1_2_1.zip` file.
- **On Mac/Linux:**

```
cd $HOME/Downloads
unzip jndi-1_2_1.zip lib/jndi.jar
```

iii. For **jta**:
- **On Windows:**
  Use Windows Explorer to enter the `downloads` directory and rename the `jta-1_0_1B-classes.zip` file to `jta-1_0_1B-classes.jar`
- **On Mac/Linux:**

```
cd $HOME/Downloads
mv jta-1_0_1B.zip jta-1_0_1B.jar
```

iv. For **mail**:
- **On Windows:**
  Use Windows Explorer to enter the `downloads` directory and extract the `mail.jar` file from the `javamail-1.3.2` subdirectory of the `javamail-1.3.2.zip` file.
- **On Mac/Linux:**

```
cd $HOME/Downloads
unzip javamail-1.3.2.zip javamail-1.3.2/mail.jar
```

b. Once you have downloaded, expanded and renamed each of these libraries, install them into your local Maven repository. For example, in your `downloads` directory, enter the following commands:

```
mvn install:install-file -DgroupId=javax.activation -DartifactId=activation
-Dversion=1.0.2 -Dpackaging=jar -Dfile=activation-1.0.2.jar
mvn install:install-file -DgroupId=javax.jms -DartifactId=jms -Dversion=1.1
-Dpackaging=jar -Dfile=jms-1.1.jar
mvn install:install-file -DgroupId=com.sun.jmx -DartifactId=jmxri -Dversion=1.2.1
-Dpackaging=jar -Dfile=jmxri.jar
mvn install:install-file -DgroupId=com.sun.jdmk -DartifactId=jmxtools -Dversion=1.2.1
-Dpackaging=jar -Dfile=jmxtools.jar
mvn install:install-file -DgroupId=jndi -DartifactId=jndi -Dversion=1.2.1
-Dpackaging=jar -Dfile=jndi.jar
mvn install:install-file -DgroupId=jta -DartifactId=jta -Dversion=1.0.1
-Dpackaging=jar -Dfile=jta-1_0_1B-classes.jar
mvn install:install-file -DgroupId=javax.mail -DartifactId=mail -Dversion=1.3.2
-Dpackaging=jar -Dfile=mail.jar
```

7. Download the JIRA source archive from http://www.atlassian.com/software/jira/JIRASourceDownloads.jspa.
   You will need to log in as a user with a commercial license to access this page.
8. Extract the JIRA source archive to a location of your choice. This will create a subdirectory with the name `atlassian-jira-X.Y-source`, where X.Y is your version of JIRA. For example, `C:\atlassian-jira-4.3-source`
9. Change directory into this subdirectory and build JIRA by executing the following Maven 2 command. For example,
   On Windows:

```
C:\atlassian-jira-4.3-source\> build.bat
```

On Mac/Linux:

```
> build.sh
```

> The build script will download several dependencies from Atlassian's public Maven repository.
>
> On rare occasions, however, the build process may fail and you may receive an error similar to the one encountered when an Atlassian product is unable to install a plugin from Atlassian's public Maven repository. This problem is caused by the JVM being unable to access its default 'cacerts' file, which contains a certificate that trusts Atlassian's public Maven repository.
>
> To resolve this problem:
> - Try one of the solutions mentioned in the Confluence Knowledge Base article: Unable to Install Plugin Due to Maven SSL.
> - If that does not resolve the problem, you may have a 'jssecacerts' file which does not contain a certificate that trusts Atlassian's public Maven repository. If a 'jssecacerts' file is present in your JVM, the 'cacerts' file may be ignored.

10. A WAR file called `jira-webapp-dist-X.Y.war` (where X.Y is your version of JIRA), will be built in the `jira-project/jira-distribution/jira-webapp-dist/target` subdirectory of your extracted JIRA source directory.

    For example, if the subdirectory created above was `C:\atlassian-jira-4.3-source`, the WAR file will be found in: `C:\atlassian-jira-4.3-source\jira-project\jira-distribution\jira-webapp-dist\target\jira-webapp-di`

    An unpacked version of your JIRA source build can also be found in the `jira-project/jira-distribution/jira-webapp-dist/target/jira-webapp-dist-X.Y` subdirectory of your extracted JIRA source directory.

11. The WAR file generated can now be installed into your application server to run the JIRA application you just built. For more information, refer to the JIRA WAR-EAR Configuration Overview. For specific installation instructions, you can follow these procedures, skipping stages 1 and 3:
    - Installing JIRA on Tomcat 5.5
    - Installing JIRA on Tomcat 6.0

    > A dedicated user should be created to run JIRA, as JIRA runs as the user it is invoked under and therefore can potentially be abused. Here is an example of how to create a dedicated user to run JIRA in Linux/Solaris:
    >
    > ```
    > $ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell
    > /bin/bash jira
    > ```
    >
    > To maximise security, ensure that this user can only write to the JIRA directories (not to the entire file system).

Developing using the IDE Connectors

Learn about the IDE Connectors from the IDE Connector Documentation.

Obtaining the source of JIRA's dependencies

When building JIRA from source, Maven will fetch the binary (compiled) dependencies that it requires automatically during the build process, so you do not have to do it manually (with the exception of the third party libraries mentioned above).

It is worth noting that JIRA's source distribution not only ships with JIRA's source code, it also includes the source of the internal Atlassian projects that JIRA depends on (e.g. atlassian-bonnie, atlassian-core, etc.). These internal Atlassian dependencies are also built from source when you build JIRA.

Other dependencies are available on Atlassian's public repository. The source of these dependencies is usually available on the library's website (try googling for the library name), or can be identified in the SCM information of the relevant library.

If you have any questions regarding the build process, please post to the JIRA Development Forum, which is monitored continually by the development community, and by Atlassian as often as possible.

Compiling Single Class Patches

If you just want to compile one class (perhaps a service), we have a step-by-step guide for how to do this in IDEA. See How to Make a JIRA Patch for details.

How to Make a JIRA Patch

To make any substantial modifications or additions to JIRA's source, you should read Building JIRA from Source. This implies building a WAR and deploying this to your Application Server.

Making a Single Class Patch

This guide describes how to make a source code modification to a single class file.

1. Download Maven 2.1.0 from the Apache archives of the Maven website.
2. Set your PATH and M2_HOME environment variables where you install Maven (and its /bin directory for the PATH).
   Refer to the Building JIRA from Source documentation for details.
3. Download JIRA source.
4. Changed directory into your extracted JIRA source directory and then into its `jira-project` subdirectory.
5. Run one of the following, depending on your preferred IDE:

```
mvn idea:idea
```

   OR

```
mvn eclipse:eclipse
```

6. Open the resulting project.
7. From your IDE, build the project.
8. From your IDE, open and compile a file. The compiled file will appear in the `target/classes` directory of the maven module that you are working on. If you are working with JIRA's core classes, this is likely to be in `/jira-project/jira-components/jira-core/target/classes`

Deploying the Patch

To deploy a patch, drop the file in the classpath from `<jira-install>/WEB-INF/classes`. For example, if you compile the class:

```
com.atlassian.jira.appconsistency.integrity.check.SearchRequestRelationCheck
```

...it will be available from:

```
/jira-project/jira-components/jira-core/target/classes/com/atlassian/jira/appconsistency/integrity/ch
```

To deploy this class, place it in:

```
<jira-install>/WEB-INF/classes/com/atlassian/jira/appconsistency/integrity/check/SearchRequestRelatio
```

...then restart JIRA.

API Documentation

The JIRA API docs are available online. They are most useful for:

- users writing Plugins, Listeners and Services
- users with commercial licenses who wish to modify JIRA
- partners embedding JIRA as a J2EE component

The latest API docs are available at http://docs.atlassian.com/software/jira/docs/api/latest/. The 4.2 docs are available at http://docs.atlassian.com/software/jira/docs/api/4.2/. JDiff reports listing the changes to the JIRA API between releases are available here. For previous versions, substitute the appropriate version in the URL.

JIRA Installation and Upgrade Guide

The pages listed below contain information on installing and upgrading JIRA:

- JIRA Requirements
  - Installing Java
- Supported Platforms
  - End of Support Announcements for JIRA
  - Caveats in using Firefox 3.6.0 with JIRA

- Installing JIRA Standalone
    - Installing JIRA Standalone on Windows
    - Installing JIRA Standalone on Mac OS
    - Installing JIRA Standalone on Unix or Linux
    - Configuring JIRA Standalone
- Installing JIRA WAR-EAR
    - JIRA WAR-EAR Configuration Overview
    - Switching Application Servers
    - Installing JIRA on Tomcat 6.0
    - Installing JIRA on Tomcat 5.5
    - Deploying Multiple Atlassian Applications in a Single Tomcat Container
- Connecting JIRA to a Database
    - Connecting JIRA to MySQL
    - Connecting JIRA to PostgreSQL
    - Connecting JIRA to SQL Server 2005
    - Connecting JIRA to SQL Server 2008
    - Connecting JIRA to Oracle
    - Connecting JIRA to HSQLDB
    - Switching Databases
- Running the Setup Wizard
    - Next Steps - Adding Users
    - Next Steps - Creating a Project
    - Next Steps - Creating an Issue
- Upgrading JIRA
    - Migrating JIRA to Another Server
    - Disabling Auto-Export
- JIRA Releases
    - Production Releases
    - JIRA Release Summary
    - Beta Releases
    - EAP Releases
    - Security Advisories
- Securing JIRA with Apache
    - Using Apache to Limit Access to the JIRA Administration Interface
    - Using Fail2Ban to limit login attempts
- Tomcat security best practices
- Important Directories and Files
    - JIRA Home Directory
    - JIRA Installation Directory
    - Setting your JIRA Home Directory
- Running JIRA in a Virtualised Environment
- Deployment Planning Activity

JIRA Requirements

JIRA is a 'web application', meaning it runs centrally on a server, and users interact with it through web browsers from any computer.

If you are considering running JIRA on VMware, please read the Running JIRA in a Virtualised Environment.

- JIRA Client/Server Software Requirements
    - 1. Browser
    - 2. Java
    - 3. Application Server
    - 4. Database
- JIRA Server Hardware Recommendations
- Next Steps

JIRA Client/Server Software Requirements

Please read the Supported Platforms page for JIRA, which lists the required server and client software supported by **JIRA 4.3.x**, including:

- Browsers (client-side)
- Java platforms (JDK/JRE) (server-side)
- Operating systems (server-side)
- Application servers *(if you are installing JIRA WAR-EAR)* (server-side)
- Databases (server-side)

Please also read the information below regarding server and client software requirements for JIRA.

1. Browser

If you have disabled JavaScript in your browser or are using a script blocking tool like NoScript, you must enable your browser to execute JavaScript from JIRA to access JIRA's full functionality.

2. Java

JIRA requires a **Java Developers Kit (JDK)** or **Java Runtime Environment (JRE)** platform to be installed on your server's operating system. (Refer to Supported Platforms for supported Java Platforms). For instructions on how to do this, please refer to Installing Java.

Currently, Sun/Oracle's JDK/JRE is available for Windows (32 bit + 64 bit), Solaris (32 bit + 64 bit) and Linux Platforms (32 bit + 64 bit). Mac OSX systems are packaged with a JDK optimised for their hardware and operating systems. However, these JDKs is not supported by JIRA.

3. Application Server

JIRA is a web application that requires an application server.

- **JIRA Standalone** ships pre-configured with Apache Tomcat, which is a stable, lightweight and fast-performing application server. (There is no need to install a separate application server if you download the JIRA Standalone distribution.)
- **JIRA WAR/EAR** can be installed into an application server (supported by Atlassian), provided this application server is compatible with your operating system and JDK. You must manually configure your JIRA WAR/EAR installation to operate with an existing application server installation.

4. Database

JIRA requires a relational database to store its issue data. JIRA supports most popular relational database servers, so we suggest using the one that you are most comfortable with administering.

- **JIRA Standalone** ships pre-configured with the HSQLDB database, which is suitable for evaluation purposes only. HSQLDB is prone to database corruption. Before deploying JIRA to a production environment, we **strongly recommend** that you connect JIRA Standalone to an enterprise database (supported by Atlassian).
- **JIRA WAR/EAR** can be connected to an enterprise database (supported by Atlassian).

JIRA Server Hardware Recommendations

During evaluation, JIRA will run well on any reasonably fast workstation computer (e.g. 1.5+ Ghz processor). Memory requirements depend on how many projects and issues you will store, but 256MB (of Java heap size) is enough for most evaluation purposes. (Note: most people start by installing JIRA Standalone on their local computer. It is easy to move JIRA to a production server later).

The hardware required to run JIRA in production depends mainly on the number of issues and users that your installation will have, as well as the maximum number of concurrent requests that the system will experience during peak hours.

- If you are planning to have a small number of projects (10-20) with 1,000 to 5,000 issues in total and about 100-200 users, a recent server (2.0+GHz Quad Core CPU) with 1-2GB of available RAM should cater for your needs.
- If you are planning for a greater number of issues and users, adding more memory will help. We have reports that allocating 1GB of RAM to JIRA is sufficient for 100,000 issues. If in doubt, allocate more memory than you think you need.
- If your system will experience a large number of concurrent requests, running JIRA on a multi-CPU machine will increase the concurrency of processing the requests, and therefore speed up the response time.

For reference, jira.atlassian.com has over 70,000 issues and over 30,000 user accounts. The system runs on a 64bit Quad processor. The server has 32 GB of memory with 1.5 GB allocated to JIRA.

Please note that performance heavily depends on your usage pattern. As a general rule, if you wish to store more than 200,000 issues in JIRA we recommend that you set up separate instances of JIRA on different physical machines and split your projects and issues between the instances. You can follow the instructions on splitting a JIRA instance, if you need to convert an existing JIRA instance into multiple instances.

We would appreciate it if you let us know what hardware configuration works for you. Please create a ticket in our support system with your hardware specification and mention the number of users and issues in your JIRA installation.

> JIRA requires access to a local disk for certain functionality (e.g. if JIRA does not have read and write access to disk, searching and attachments will not work).

> While some of our customers run JIRA on SPARC-based hardware, Atlassian only officially supports JIRA running on x86 hardware and 64-bit derivatives of x86 hardware.

Next Steps

Install JIRA Standalone (recommended); or Install JIRA WAR/EAR.

Installing Java

On this page:

- 1. Installing Java
- 2. Setting JAVA_HOME
- 3. Confirming that Java works
- Next Step

You can skip this page if you are using the Windows Installer.

1. Installing Java

JIRA requires Sun/Oracle's Java Development Kit (JDK) or Java Runtime Environment (JRE) platform version 6 (1.6) update 10 or later to run. The JDK may be obtained from Oracle's website (get the 'offline' edition if you're using Windows).

Linux note: Linux distributions frequently have an open-source implementation of Java called GCJ installed. Do not use this - it is incomplete and will cause JIRA to fail in obscure ways. You can test whether you have the correct Java platform by running `java -version` :

```
~$ java -version
java version "1.6.0"
Java(TM) SE Runtime Environment (build 1.6.0-b105)
Java HotSpot(TM) Client VM (build 1.6.0-b105, mixed mode, sharing)
```

On recent Linux distributions, Sun/Oracle's Java can be installed with a command like `sudo apt-get install sun-java6-jdk` (for Ubuntu).

Linux note: On recent X.org-based distros (eg. FC4+) to avoid getting errors like:

```
java.lang.UnsatisfiedLinkError: /opt/j2sdk1.4.2_11/jre/lib/i386/libawt.so: libXp.so.6: cannot open
        shared object file: No such file or directory
```

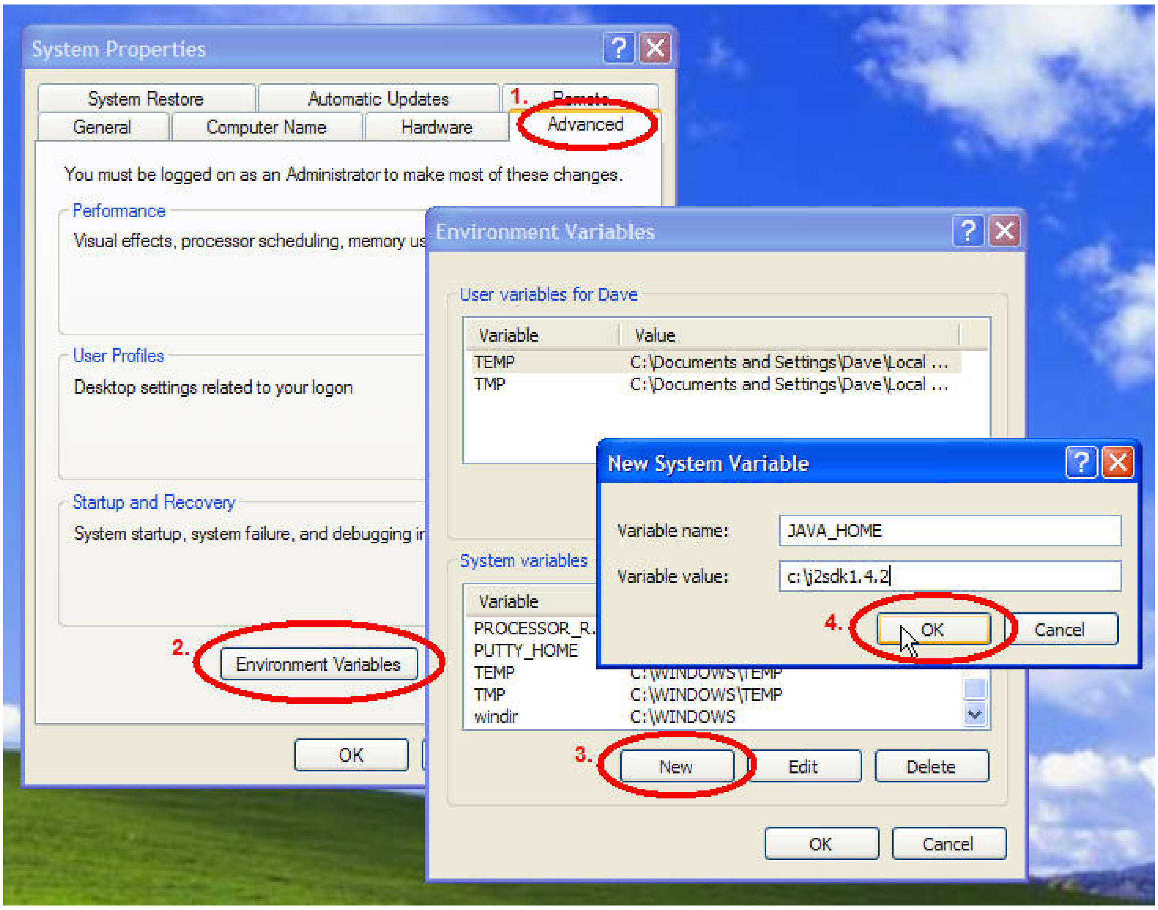
you will need to install the **xorg-x11-deprecated-libs** package (Fedora) or equivalent (check Google).

2. Setting JAVA_HOME

Once the JDK or JRE is installed, you will need to set the **`JAVA_HOME`** environment variable, pointing to the root directory of the JDK or JRE. Some JDK/JRE installers set this automatically (check by typing '`echo %JAVA_HOME%`' in a Windows command prompt, or '`echo $JAVA_HOME`' in a Linux/UNIX shell prompt).

If this environment variable is not set on a Windows-based computer, you can set it in the Control Panel using the following procedure:

1. Open the Windows 'Advanced' system properties dialog box:
    - On Windows XP-based operating systems, right-click on the **My Computer** icon on your desktop (or via the **Start** menu), select '**Properties**' and click the '**Advanced**' tab.
    - On Windows 7-based operating systems, right-click the **Computer** icon on your desktop (or via the **Start** menu), select '**Properties**', click '**Advanced system settings**', select '**Properties**' and click the '**Advanced**' tab.
2. Click the **Environment Variables** button.
3. Click one of the **New** buttons (to define a new environment variable for your user account, or if available, system-wide).
4. Type `JAVA_HOME` as the variable name and the directory where you installed Java.



5. After clicking the required '**OK**' buttons to save your changes, your `JAVA_HOME` environment variable should be available in a *new* command prompt window. If not or if necessary, restart your computer.

3. Confirming that Java works

When the above steps have been done correctly, it should be possible to open a DOS prompt and type `%JAVA_HOME%\bin\javac` , and see this printed:

```
Usage: javac <options> <source files>
where possible options include:
...
```

If, later on when you try to start JIRA, you get the error **Windows cannot find '-Xms128m'**, it is because you have not correctly set `JAVA_HOME`.

Next Step

Install JIRA Standalone

Supported Platforms

End of Support Announcements
Please read End of Support Announcements for JIRA for important information regarding the end of support for various platforms and browsers when used with JIRA.

This page describes the supported platforms for **JIRA 4.3.x**.

Key: ✅ = Supported; ❌ = Not Supported

Java Platforms	
Sun/Oracle JDK / JRE	✅ 1.6 (update 10 or higher)

Operating Systems	
Microsoft Windows [(1)]	✔
Linux / Solaris [(1,2)]	✔
Apple Mac OS X [(1)]	✔
Application Servers	
Apache Tomcat [(3)]	✔ 6.0.20 (bundled with JIRA Standalone) ✘ 6.0.0 – 6.0.19 ✔ 5.5.27, 5.5.28, 5.5.29
Databases	
MySQL	✔ 5.x with JDBC Connector/J 5.1 ✘ 4.1 and later, prior to 5.x (do not support modern SQL (subselects)) ✘ 4.0 and earlier (known issues with Unicode)
PostgreSQL	✔ PostgreSQL 8.2 and later with PostgreSQL Driver 8.4.x
Microsoft SQL Server	✔ 2008 with the JTDS 1.2.3 driver ✔ 2005 with the JTDS 1.2.3 driver ✘ 2000 ✘ Express
Oracle	✔ 11G with Oracle 11.2.x drivers ✔ 10G with Oracle 11.2.x drivers ✘ 9i (incompatible with the latest Oracle drivers)
HSQLDB [(4)]	✔ (bundled with JIRA Standalone; supported for evaluation use only)
Web Browsers	
Microsoft Internet Explorer [(5)]	✔ 8.0, 7.0
Mozilla Firefox [(5)]	✔ 3.6 [(6)], 3.5 ✘ 3.0 is not supported with JIRA. For more information, please refer to the End of Support Announcements for JIRA.
Safari [(5)]	✔ 5 ✘ 4 is not supported with JIRA. For more information, please refer to the End of Support Announcements for JIRA.
Chrome	✔

Notes:

1. JIRA is a pure Java-based application and should run on any supported operating system, provided that the JDK / JRE requirements are satisfied.
2. A dedicated user should be created to run JIRA, as JIRA runs as the user it is invoked under and therefore can potentially be abused. Here is an example of how to create a dedicated user to run JIRA in Linux/Solaris:

```
$ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell /bin/bash jira
```

3. Deploying multiple Atlassian applications in a single Tomcat container is **not supported.** We do not test this configuration and upgrading any of the applications (even for point releases) is likely to break it. There are also a number of known issues with this configuration (see this FAQ for more information).

We also strongly recommend that you do not deploy multiple Atlassian applications in a single Tomcat container for a number of practical reasons. Firstly, you will need to shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in the Tomcat container will be inaccessible.

4. JIRA ships with a built-in HSQL database, which is fine for evaluation purposes but is somewhat susceptible to data loss during system crashes. For production environments we recommend that you configure JIRA to use an external database.
5. Minimum screen resolution of 1024 x 768 (when these browsers are maximised).
6. Firefox version 3.6.0 possesses a bug that could result in data loss when used with JIRA. If you use this version of Firefox, please either upgrade your version of Firefox to 3.6.2 or refer to our Firefox 3.6.0 caveats document for more details about this issue and how to avoid it.

End of Support Announcements for JIRA

This page contains announcements of the end of support for various platforms and browsers when used with JIRA. Please see the sections below for details.

On this page (most recent announcements first):

- Deprecated Web Browsers for JIRA (27 September 2010)
- Deprecated Databases for JIRA (13 August 2010)
- Deprecated Application Servers for JIRA (27 January 2010)
- Deprecated Java Platforms for JIRA (27 January 2010)
- Deprecated Web Browsers for JIRA (11 December 2009)

Deprecated Web Browsers for JIRA (27 September 2010)

This section announces the end of Atlassian support for certain web browsers for JIRA.

We will **stop supporting older versions of web browsers** as follows:

- From JIRA 4.3, due in Quarter 1 2011, JIRA will no longer support Safari 4 and Firefox 3.0.x.

The details are below. Please refer to the Supported Platforms for more details regarding platform support for JIRA. If you have questions or concerns regarding this announcement, please email `eol-announcement at atlassian dot com`.

End of Life Announcement for Web Browser Support

Web Browsers	Support End Date
Safari 4	When JIRA 4.3 releases (due in Quarter 1 2011)
Firefox 3.0.x	When JIRA 4.3 releases (due in Quarter 1 2011)

- **General End of Support Notes:**
  - JIRA 4.2 (due Quarter 4 2010) will be the last JIRA version to officially support Safari 4 and Firefox 3.0.x.
  - 'Support End Date' means that JIRA 4.2 and previous released versions will continue to work with Safari 4 and Firefox 3.0.x. However, we will not fix bugs affecting these browser versions past the support end date.

- **Firefox End of Support Notes:**
  - The decision to end support for Firefox 3.0.x in JIRA 4.3 was made in line with Mozilla's support strategy, which indicates that Firefox 3.0.x will be maintained with security and stability updates until January 2010.

Deprecated Databases for JIRA (13 August 2010)

This section confirms that Atlassian support for DB2 for JIRA ended in JIRA 4.0. End of support means that Atlassian will no longer fix bugs related to DB2.

We **do not support the following databases**:

- Atlassian ended support for DB2 at the release of JIRA 4.0 (October 2009), with the final support for these platforms in JIRA 3.13.

We made this decision in order to reduce our database support, to reduce testing time and help us speed up our ability to deliver market-driven features. We are committed to helping our customers understand this decision and assist them in migrating to a supported database, if needed.

Please refer to the Supported Platforms for more details regarding platform support for JIRA. If you have questions or concerns regarding this announcement, please email `eol-announcement at atlassian dot com`.

- **DB2 End of Support Notes:**
  - 'Support End Date' means that JIRA 3.13 and versions prior to JIRA 3.13 will continue to work with the DB2. However, we will not fix bugs affecting DB2 past the support end date.
  - JIRA 4.0 (released in October 2009) and later versions of JIRA have not been tested with DB2.

Deprecated Application Servers for JIRA (27 January 2010)

This section announces the end of Atlassian support for certain application server platforms for JIRA WAR/EAR. End of support means that Atlassian will not fix bugs in certain application servers past the support end date.

We will **stop supporting the following application servers**:

- From JIRA 4.1, due late Q1 2010, JIRA will no longer support JBoss application servers.
- From JIRA 4.2, due in Q3 2010, JIRA will no longer support Oracle WebLogic or IBM WebSphere.

We are reducing our application server platform support to reduce the amount of testing time and help us speed up our ability to deliver market-driven features. We are committed to helping our customers understand this decision and assisting them in migrating to Tomcat, our supported Application Server. You have the option of installing the JIRA Standalone version which includes our supported Tomcat application server. For instructions, please see Switching Application Servers.

Please refer to the Supported Platforms for more details regarding platform support for JIRA. If you have questions or concerns regarding this announcement, please email `eol-announcement at atlassian dot com`.

End of Life Announcement for Application Server Support

Application Servers	Support End Date
JBoss 4.2.2	When JIRA 4.1 releases, due late Q1 2010
Oracle WebLogic 9.2	When JIRA 4.2 releases, due Q3 2010
IBM WebSphere 6.1	When JIRA 4.2 releases, due Q3 2010

- **JBoss End of Support Notes:**
  - 'Support End Date' means that JIRA 4.0 and previous released versions will continue to work with JBoss Application Servers. However, we will not fix bugs affecting JBoss application servers.
  - JIRA 4.1 will not support JBoss application servers.

- **WebSphere and WebLogic End of Support Notes:**
  - Atlassian is targeting a support end of life for Oracle WebLogic and IBM WebSphere in Q3 2010, with the final support for these platforms in JIRA 4.1.
  - 'Support End Date' means that JIRA 4.1 and previous released versions will continue to work with the stated application servers. However, we will not fix bugs affecting Oracle WebLogic and IBM WebSphere application servers past the support end date.
  - JIRA 4.2 (due to release in Q3 2010) will only be tested with and support Tomcat 5.5 and 6.0.
  - If you have concerns with this end of support announcement, please email `eol-announcement at atlassian dot com`.

Why is Atlassian doing this?

Atlassian is committed to delivering improvements and bug fixes as fast as possible. We are also committed to providing world class support for all the platforms our customers run our software on. However, as the complexity of our applications grows, the cost of supporting multiple platforms increases exponentially. Each new feature has to be tested on several combinations of application servers, with setup and ongoing maintenance of automated tests. At times, 30% of the development team is busy coding solutions for edge cases in various application servers. Moving forward, we want to reduce the time spent there in order to increase JIRA development speed significantly.

We have chosen to standardise on Tomcat, because it is the most widely used application server in our user population. It is fast, robust, secure, well-documented, easy to operate, open source, and has a huge community driving improvements. It is the de facto industry standard, with several companies available that specialise in providing enterprise grade support contracts for it, ranging from customisations to 24/7 support.

Deprecated Java Platforms for JIRA (27 January 2010)

This section announces the end of Atlassian support for certain Java Platforms for JIRA.

We will **stop supporting the following Java Platforms**:

- From JIRA 4.2, due Q3 2010, support for Java Platform 5 (JDK/JRE 1.5) will end.

We are ending support for Java Platform 5, in line with Sun's Java SE Support Road Map (i.e. "End of Service Life" for Java Platform 5 dated October 30, 2009). We are committed to helping our customers understand this decision and assisting them in updating to Java Platform 6, our supported Java Platform.

The details are below. Please refer to the Supported Platforms for more details regarding platform support for JIRA. If you have questions or concerns regarding this announcement, please email `eol-announcement at atlassian dot com`.

End of Life Announcement for Java Platform Support

Java Platform	Support End Date
Java Platform 5 (JDK/JRE 1.5)	When JIRA 4.2 releases, due Q3 2010

- **Java Platform 5 End of Support Notes:**
  - Atlassian intends to end support for Java Platform 5 in Q3 2010.
  - 'Support End Date' means that JIRA 4.1.x and previous released versions will continue to work with Java Platform 5 (JDK/JRE 1.5). However, we will not fix bugs related to Java Platform 5 past the support end date.
  - JIRA 4.2 (due to release in Q3 2010) will only be tested with and support Java Platform 6 (JDK/JRE 1.6).
  - If you have concerns with this end of support announcement, please email `eol-announcement at atlassian dot com`.

Deprecated Web Browsers for JIRA (11 December 2009)

This section announces the end of Atlassian support for certain web browsers for JIRA.

We will **stop supporting older versions of web browsers** as follows:

- JIRA 4.1 will be the last version of JIRA to support IE6. (From JIRA 4.0 to JIRA 4.1, all of the main functionality will work in IE 6. However, some of the visual effects will be missing.)

The details are below. Please refer to the Supported Platforms for more details regarding platform support for JIRA. If you have questions or concerns regarding this announcement, please email `eol-announcement at atlassian dot com`.

End of Life Announcement for Web Browser Support

Web Browsers	Support End Date
Internet Explorer 6	When JIRA 4.2 releases (target Q3 2010)

- **Internet Explorer 6 End of Support Notes:**
  - JIRA 4.1 (due late Q1 2010) will be the last version to officially support Internet Explorer 6.
  - JIRA 4.2 is currently targeted to release Q3 2010 and will **not** support IE6.
  - This decision was made in line with Microsoft's Support Lifecycle policy, which indicates the official end of support for Internet Explorer 6 on 13th July, 2010. Please note that released versions of JIRA up to and including JIRA 4.1 will continue working with IE6 just as they did before, but we will not fix bugs affecting Internet Explorer 6.
  - You may be able to use Internet Explorer 6 for the most common use cases like viewing and editing content in JIRA 4.1 and earlier, but official support for this browser will end once you upgrade to JIRA 4.2.

Caveats in using Firefox 3.6.0 with JIRA

Overview

A **bug in Firefox 3.6.0** results in this browser version failing to submit form data to JIRA, resulting in data loss. For more information about this bug, please refer to the following links:

- Mozilla forum support posting
- Bug report in JIRA describing the symptoms
- Mozilla's own bug report

Symptoms

If you spend more than 5 minutes either creating or editing an issue in Firefox 3.6.0 and then attempt to submit the issue, you may lose all the data that you just entered or modified and the data changes will not be saved to JIRA. This Firefox 3.6.0 bug may also affect other JIRA screens on which form data has been left for more than 5 minutes.

This Firefox bug will affect you if the following points are true

- You are running Firefox 3.6.0 on Windows or Linux
  AND
- Your Firefox browser's proxy settings have been set to any of the following options:
  - 'Auto-detect proxy settings for this network'
  - 'Manual proxy configuration'
  - 'Automatic proxy configuration URL'

Proxy server configurations for web browsers are typically required in networks where Internet access is monitored or controlled, such as some corporate environments. Your organisation may *require* that your web browser be configured through a proxy server for Internet access.

How can I prevent this bug affecting me?

If you are using Firefox 3.6.0, there are two ways you can avoid this bug:

1. Ensure Firefox's proxy settings have been set to 'No proxy'. (See below for details.)
2. Upgrade Firefox to version 3.6.2.
   Firefox did not officially release a '3.6.1' version.

To determine Firefox's current proxy settings:

1. Click the '**Tools**' menu in Firefox and then the '**Options**' menu item, which opens the 'Options' dialog box.
2. Click '**Advanced**' and then select the '**Network**' tab.
3. Click the '**Settings**' button, which opens the 'Connection Settings' dialog box.
   - If 'No proxy' is selected in the 'Connection Settings' dialog box, then you do not need to take any further action.
   - If any of the other options (listed above) are selected, your network administrator may require that your web browser be configured through a proxy server for Internet access. Please consult your network administrator about this issue before making any further changes to these settings.
4. Click the '**Cancel**' buttons to close the Firefox dialog boxes.

To set Firefox's proxy setting to 'No proxy':

1. Open Firefox's 'Connection Settings' dialog box (as described above).
2. Select the '**No proxy**' option and click the '**OK**' button.

Installing JIRA Standalone

Full Size

This Installation Guide applies if you are installing JIRA for the first time. If you are upgrading JIRA, please refer to the Upgrade Guide.

Which 'Distribution' Should You Choose?

JIRA is available in two 'distributions':

Standalone distribution	WAR/EAR distribution
Pre-packaged with Tomcat application server	Deploys into an existing application server
Pre-packaged with HSQLDB database, but can be easily connected to any supported database	Connects to any supported database
Requires virtually no setup	Requires manual configuration
Recommended for all users	Suitable only for system administrators

The **Standalone distribution is recommended,** even for organisations with an existing application server environment. Please note however, that the HSQLDB database pre-packaged with the Standalone distribution is suitable for evaluation purposes only.

To install JIRA Standalone, follow the instructions for your operating system:

- Installing JIRA Standalone on Windows
- Installing JIRA Standalone on Mac OS
- Installing JIRA Standalone on Unix or Linux

Installing JIRA Standalone on Windows

Full Size

This Installation Guide applies if you are installing JIRA for the first time. If you are upgrading JIRA, please refer to the Upgrade Guide.

To install JIRA Standalone on Windows, follow these steps:

- 1. Download and Install JIRA Standalone
- 2. Start JIRA
- 3. Run the Setup Wizard
- Next Steps

1. Download and Install JIRA Standalone

Before you begin, you may want to watch the installation video.

1. Download the JIRA Standalone **Windows Installer (.EXE)** file from the JIRA Download Center.
2. Run the **.EXE** file.
3. You will be prompted for input (such as the directory in which to install JIRA and the JIRA Home directory).

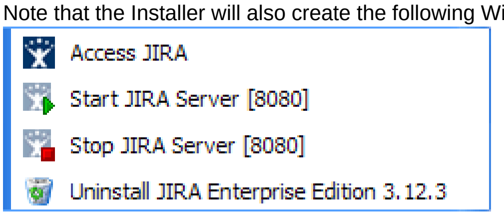
    There are known problems with permissions when installing JIRA on Windows, for example on **Windows Vista / Windows 7** the default "C:\Program Files", may require you to have local administrator rights - please see JRA-19683 for a workaround for this and see Install JIRA on Windows Vista for a guide on installing JIRA as a service.

4. If you have local administrator rights on your PC, you will be prompted to install JIRA as a *service* (recommended). You can also do this manually later, as described in Configuring JIRA Standalone to run as a Service.
5. You may be prompted to choose the *port* that JIRA runs on. (This will happen if you have already installed JIRA and it is running, or if you have some other existing network service running on JIRA's default ports.) If you are not sure which port number to choose, try new numbers one by one, starting with '8080' and incrementing by one. Keep going until you find an available port number.

2. Start JIRA

JIRA will start automatically when the Installer finishes, if you have selected the option to launch JIRA at the end of the Installer wizard.

Note that the Installer will also create the following Windows 'Start' menu shortcuts, which you can also use to start and stop JIRA:



- **Access JIRA** — this shortcut opens a web browser window to access your JIRA application (via http://localhost:8080). Please note that your JIRA server must be running to access the JIRA application via your browser.
- **Start JIRA Server** — this shortcut starts the JIRA instance on your application server, so that you can access it with your browser.
- **Stop JIRA Server** — this shortcut stops the JIRA instance on your application server. You will not be able to access the JIRA application via your browser, if a JIRA instance is not running on your application server.

To access JIRA, go to your web browser and type this address: http://localhost:8080. Alternatively, you can use the 'Access JIRA' shortcut in the 'Start' menu.

If JIRA does not appear, you may need to change the port that JIRA runs on.

3. Run the Setup Wizard

See Running the Setup Wizard.

Next Steps

- See JIRA 101 to start creating Projects, creating Users, and customising your JIRA instance.

- We highly recommend that you configure JIRA Standalone to run as a service. If you do not do this, you will need to start the JIRA server manually (via the 'Start' menu shortcut or using the `bin\startup.bat`file) every time you restart your computer. NOTE: If you have Administrator rights to your PC, then the Windows Installer may have already done this as part of the installation process
- By default, JIRA Standalone uses the standard Tomcat port (i.e. 8080). If you need another application to run on that port, either now or in the future, please see Changing JIRA Standalone's port.
- As part of its installation process, JIRA Standalone automatically installs, configures and connects itself to an HSQLDB database. This is fine for evaluation purposes, however HSQLDB is prone to data corruption. For production installations, we strongly recommend that you connect JIRA to an external database.
- To get the most out of JIRA, please see Optimising Performance.

Installing JIRA Standalone on Mac OS

Full Size

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To install JIRA Standalone on Mac OS, follow these steps:

- Before you begin
- 1. Download and Install JIRA Standalone
- 2. Set JIRA Home
- 3. Start JIRA
- 4. Run the Setup Wizard
- Next Steps

Before you begin

Please ensure that you have set JAVA_HOME. (You don't need to install Java as it comes with Mac OS.)

1. Download and Install JIRA Standalone

Before you begin, you may want to watch the installation video.

1. Download the JIRA Standalone **TAR (.GZ)** file here.
2. Unzip the downloaded file.

2. Set JIRA Home

To specify the location of your JIRA Home Directory:

- Edit the `jira-application.properties` file (see the JIRA Installation Directory page to find where this file is located), add a 'jira.home' property and set it to your desired location for the JIRA home directory.

You can specify any location on a disk for your JIRA home directory. Please be sure to specify an absolute path.

Please note that you cannot use the same JIRA home directory for multiple instances of JIRA. We recommend that you do not specify your JIRA home directory to be inside your installation directory, to prevent information from being accidentally lost during major operations (e.g. backing up and restoring instances).

3. Start JIRA

A dedicated user should be created to run JIRA, as JIRA runs as the user it is invoked under and therefore can potentially be abused. Here is an example of how to create a dedicated user to run JIRA in Linux/Solaris:

```
$ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell /bin/bash jira
```

Ensure that only the following directories can be written to by Tomcat:

- logs
- temp
- work
- database (this directory will be created the first time you run JIRA)
- your JIRA Home directory

See also Tomcat security best practices

Run `bin/startup.sh` to start JIRA.

JIRA will be launched in a black 'Tomcat' window (do not close this window). Wait until the startup messages have finished.

To access JIRA, go to your web browser and type this address: http://localhost:8080.

If JIRA does not appear, you may need to change the port that JIRA runs on.

If something goes wrong, please verify that Java is installed correctly. If the problem persists, please contact us — we're happy to help.

4. Run the Setup Wizard

See Running the Setup Wizard.

Next Steps

- See JIRA 101 to start creating Projects, creating Users, and customising your JIRA instance.
- By default, JIRA Standalone uses the standard Tomcat port (i.e. 8080). If you need another application to run on that port, either now or in the future, please see Changing JIRA Standalone's port.
- As part of its installation process, JIRA Standalone automatically installs, configures and connects itself to an HSQLDB database. This is fine for evaluation purposes, however HSQLDB is prone to data corruption. For production installations, we strongly recommend that you connect JIRA to an external database.
- To get the most out of JIRA, please see Optimising Performance.

Installing JIRA Standalone on Unix or Linux

Full Size

To install JIRA Standalone on UNIX/Linux, follow these steps:

- Before you begin
- 1. Download and Install JIRA Standalone
- 2. Set JIRA Home
- 3. Start JIRA
- 4. Run the Setup Wizard
- Next Steps

Before you begin

Please ensure that you have installed Java and set JAVA_HOME.

- **Linux note:** Linux distributions frequently have an open-source implementation of Java called GCJ installed. Do not use this — it is incomplete and will cause JIRA to fail in obscure ways.

1. Download and Install JIRA Standalone

1. Download the JIRA Standalone TAR (.GZ) file here.
2. Unzip the downloaded file.

   Avoid the Solaris default tar utility! On Solaris, please use **GNU tar** to unpack JIRA in order to handle long filenames. Do not use the Solaris default tar utility.

2. Set JIRA Home

To specify the location of your JIRA Home Directory:

- Edit the `jira-application.properties` file (see the JIRA Installation Directory page to find where this file is located), add a 'jira.home' property and set it to your desired location for the JIRA home directory.

You can specify any location on a disk for your JIRA home directory. Please be sure to specify an absolute path.

Please note that you cannot use the same JIRA home directory for multiple instances of JIRA. We recommend that you do not specify your JIRA home directory to be inside your installation directory, to prevent information from being accidentally lost during major operations (e.g. backing up and restoring instances).

3. Start JIRA

A dedicated user should be created to run JIRA, as JIRA runs as the user it is invoked under and therefore can potentially be abused. Here is an example of how to create a dedicated user to run JIRA in Linux/Solaris:

```
$ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell /bin/bash jira
```

Ensure that only the following directories can be written to by Tomcat:

- logs
- temp
- work
- database (this directory will be created the first time you run JIRA)
- your JIRA Home directory

See also Tomcat security best practices

Run `bin/startup.sh`. Wait until the following message appears in the application's log file:

```
****************************************************
 You can now access JIRA through your web browser.
****************************************************
```

To access JIRA, go to your web browser and type this address: http://localhost:8080.

> If JIRA does not appear, you may need to change the port that JIRA runs on.

Note: Logs will be written to `logs/catalina.out`.

> If something goes wrong, please verify that Java is installed correctly. If the problem persists, please contact us — we're happy to help.

4. Run the Setup Wizard

See Running the Setup Wizard.

Next Steps

- See JIRA 101 to start creating Projects, creating Users, and customising your JIRA instance.
- If you like to set up JIRA Standalone to start automatically every time you restart your computer, please see Starting JIRA Standalone automatically on Linux.
- By default, JIRA Standalone uses the standard Tomcat port (i.e. 8080). If you need another application to run on that port, either now or in the future, please see Changing JIRA Standalone's port.
- As part of its installation process, JIRA Standalone automatically installs, configures and connects itself to an HSQLDB database. This is fine for evaluation purposes, however HSQLDB is prone to data corruption. For production installations, we strongly recommend that you connect JIRA to an external database.
- To get the most out of JIRA, please see Optimising Performance.

Configuring JIRA Standalone

The pages listed below contain information on configuring JIRA Standalone:

- Running JIRA over SSL or HTTPS
- Installing Confluence and JIRA Together
- Changing JIRA Standalone's port
- Integrating JIRA with a Web Server
- Running JIRA Standalone as a Service
- Starting JIRA Standalone automatically on Linux
- Using the JIRA Configuration Tool
- Starting JIRA Standalone automatically on FreeBSD

Running JIRA over SSL or HTTPS

When web applications are being accessed across the internet, there is always the possibility of usernames and passwords being intercepted by intermediaries between your computer and the ISP/company. It is often a good idea to enable access via HTTPS (HTTP over SSL) and make this a requirement for pages where passwords are sent. Note, however, that using HTTPS may result in slower performance. In some cases where issue data is sensitive, all pages should be accessed via HTTPS.

> Please note that Atlassian Support will refer SSL support to the institution that issues the Certificate. We provide this documentation for reference.

The process of enabling SSL access is specific to each application server, but the process for specifying which pages require protection is generic.

> This procedure is a general guide for the way to configure **Tomcat** with HTTPS and only covers the common installation types of JIRA. It is by no means a definitive or comprehensive guide to configuring HTTPS and may not be applicable to your specific integration.

For JIRA Windows Standalone installations

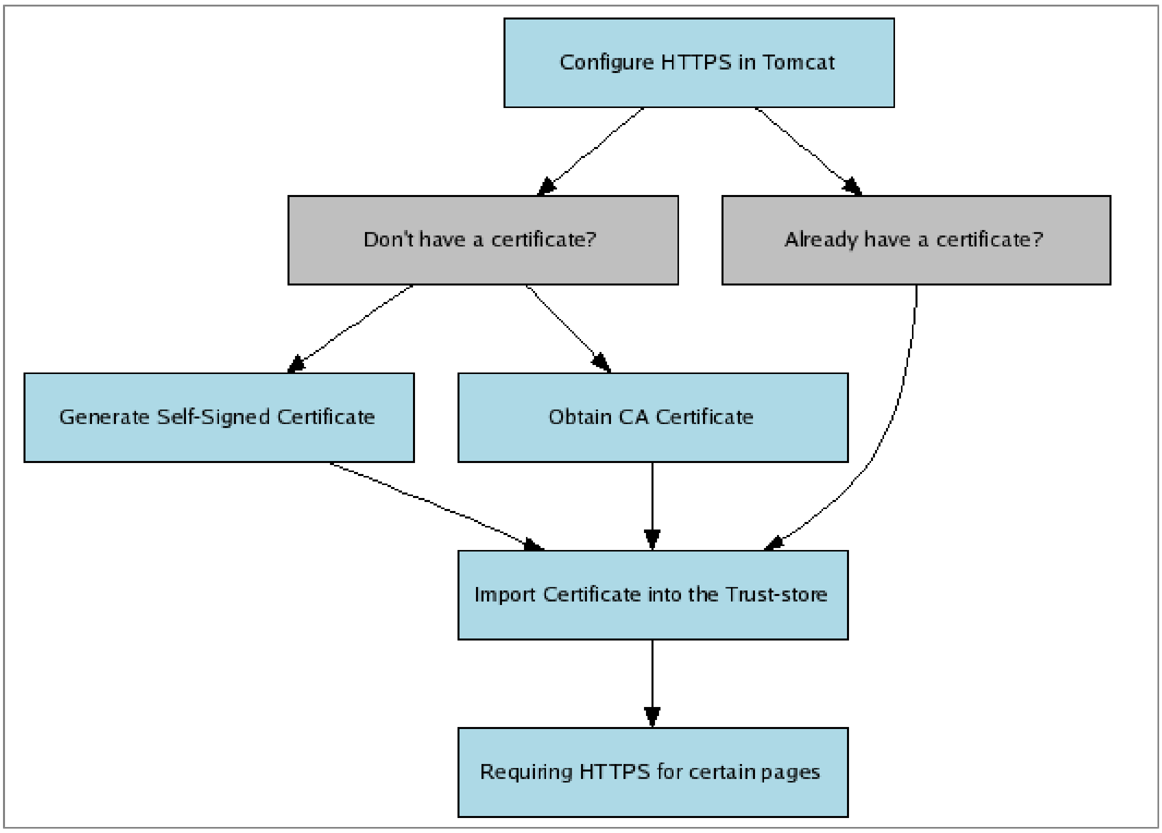
- Since JIRA 3.8, Java comes bundled with JIRA Windows Standalone. It is this bundled JRE (Java Runtime Environment) that is used to run Tomcat by default, and which must be updated with the SSL certificates.
- The term <install-dir> is used frequently in this document which refers the the installation directory of JIRA. The JIRA Installation Directory KB shows you how to determine this for your particular installation.

On this page:

- Running JIRA over HTTPS
  - Configure HTTPS in Tomcat
  - Generate Self-Signed Certificate
  - Obtain CA Certificate
  - Import Certificate into the Trust-store
  - Redirecting certain pages to HTTPS
- Troubleshooting
  - SSL + Apache + IE problems
  - Can't find the keystore
  - Incorrect password
  - Passwords don't match
  - Wrong certificate

Running JIRA over HTTPS

The following flowchart shows the process involved in configuring HTTPS on Tomcat. Click the links below this chart to go to the instructions for that step.



- Configure HTTPS in Tomcat
- Generate Self-Signed Certificate
- Obtain CA Certificate
- Import Certificate into the Trust-store
- Requiring HTTPS for certain pages (Redirecting certain pages to HTTPS)

Configure HTTPS in Tomcat

Edit `conf/server.xml`, and at the bottom before the </Service> tag, add this section (or uncomment it where you find it) in Tomcat 6:

```
<Connector port="8443" maxHttpHeaderSize="8192" SSLEnabled="true"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" disableUploadTimeout="true" useBodyEncodingForURI="true"
acceptCount="100" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS" />
```

This enables SSL access on port 8443 (the default for HTTPS is 443, but just as Tomcat uses 8080 instead of 80 to avoid conflicts, 8443 is used instead of 443 here).

^Back to the flowchart

Generate Self-Signed Certificate

Self-signed certificates are useful in cases where you require encryption but do not need to verify the website identity. They are commonly used for testing and on internal corporate networks (intranets).

Due to the certificate not being signed by a Certification Authority (CA), users may get prompted that the site is untrusted and may have to perform several steps to "accept" the certificate before they can access the site. This usually will only occur the first time they access the site.

The following approach to create the certificate uses Java's keytool, and has been formatted for use with Java 1.6.
There are other tools for generating certificates such as openSSL which are not discussed in this procedure.

When running the following keytool command you will be prompted with:

```
What is your first and last name?
```

Instead of entering your first and last name as specified, you **must** enter the fully qualified hostname of the server running JIRA. This is the same as the name you would type in your web browser after the http:// section to access your JIRA installation. When the client web browser examines the certificate, it checks this field, and makes sure that it matches the hostname. If it doesn't, it may prevent access to the site, and at the very least will generate pop-up messages saying that there is a mismatch. An example of a qualified hostname is: support.atlassian.com

The keytool utility will also prompt you for two passwords: the keystore password and the key password for Tomcat. You must use the same value for both passwords, and the value must be either:

1. "changeit" (this is the default value Tomcat expects), or
2. if you use a value other than "changeit", you must also specify it in `conf/server.xml`. You must add the following attribute to the Connector tag described above:

```
keystorePass="<password value>"
```

Windows Standalone

```
"<install_dir>\jre\bin\keytool" -genkey -alias tomcat -keyalg RSA
```

Windows WAR/EAR

```
"%JAVA_HOME%\bin\keytool" -genkey -alias tomcat -keyalg RSA
```

Unix/Linux

```
$JAVA_HOME/bin/keytool -genkey -alias tomcat -keyalg RSA
```

This will create (if it doesn't already exist) a new .keystore file located in the home directory of the user you used to run the keytool command.

You will now need to export the certificate to make it ready for importing into the Trust-store with the following command:

Windows Standalone

```
"<install_dir>\jre\bin\keytool" -export -alias tomcat -file file.cer
```

Windows WAR/EAR

```
"%JAVA_HOME%\bin\keytool" -export -alias tomcat -file file.cer
```

Unix/Linux

```
$JAVA_HOME/bin/keytool -export -alias tomcat -file file.cer
```

Next, import the certificate into the Trust-store.

^Back to the flowchart

Obtain CA Certificate

Digital Certificate that are issued by trusted 3rd party CAs (Certification Authority) provide verification that your Website does indeed represent your company, thereby verifying your company's identity. Many CAs simply verify the domain name and issue the certificate, whereas other such as VeriSign verifies the existence of your business, the ownership of your domain name, and your authority to apply for the certificate, providing a higher standard of authentication.

A list of CA's can be found here.
Some of the most well known CAs are:

- Verisign
- Thawte
- CAcert (relatively new CA, providing free CA certificates)

Next, import the certificate into the Trust-store.

^Back to the flowchart

Import Certificate into the Trust-store

Your SSL Vendor may have different instructions, please refer to them for proper certificate installation. Examples include GoDaddy and VeriSign

Assuming your certificate is called "file.cer" whether obtained by a CA or self-generated, the following command will add this certificate to the Trust-store:

Windows Standalone

```
"<install_dir>\jre\bin\keytool" -import -alias tomcat -file file.cer -keystore
"<install_dir>\jre\lib\security\cacerts"
```

Windows WAR/EAR

```
"%JAVA_HOME%\bin\keytool" -import -alias tomcat -file file.cer -keystore
"%JAVA_HOME%\jre\lib\security\cacerts"
```

Unix/Linux

This step must be performed as the root user, or with the use of sudo

```
$JAVA_HOME/bin/keytool -import -alias tomcat -file file.cer -keystore
$JAVA_HOME/jre/lib/security/cacerts
```

Next, proceed to the step on redirecting certain pages to HTTPS.

^Back to the flowchart

Redirecting certain pages to HTTPS

Although HTTPS is now activated and available, the old HTTP URLs (http://localhost:8080) are still available. In most situations one wants these URLs to continue working, but for some to redirect to their https equivalent. This is done by editing `WEB-INF/web.xml`, and adding the following section at the end of the file, before the closing `</web-app>`:

```
<security-constraint>
<web-resource-collection>
<web-resource-name>all-except-attachments</web-resource-name>
<url-pattern>*.js</url-pattern>
<url-pattern>*.jsp</url-pattern>
<url-pattern>*.jspa</url-pattern>
<url-pattern>*.css</url-pattern>
<url-pattern>/browse/*</url-pattern>
</web-resource-collection>
<user-data-constraint>
<transport-guarantee>CONFIDENTIAL</transport-guarantee>
</user-data-constraint>
</security-constraint>
```

This means that all URLs *except attachments* are redirected from HTTP to HTTPS. IE has a bug which prevents attachments like .doc files being viewed via HTTPS if SSL protection is forced in `web.xml`.

Once this change is made, restart JIRA and access http://localhost:8080. You should be redirected to https://localhost:8443/secure/Dashboard.jspa. The port it redirects to is determined by the `redirectPort` value you specify in the `server.xml` file in the HTTP Connector stanza.

There does not seem to be an easy way to make subsequent pages revert to HTTP after logging in via HTTPS - see JRA-7250

Troubleshooting

Here are some troubleshooting tips if you are using a self-signed key created by keytool, as described above.

When you enter "https://localhost:8443" in your browser, if you get a message such as "Cannot establish a connection to the server at localhost:8443", look for error messages in your logs/catalina.out log file. Here are some possible errors with explanations:

SSL + Apache + IE problems

Some people have reported errors when uploading attachments over SSL using IE. This is due to an IE bug, and can be fixed in Apache by setting:

```
BrowserMatch ".MSIE." \
nokeepalive ssl-unclean-shutdown \
downgrade-1.0 force-response-1.0
```

Google has plenty more on this.

Can't find the keystore

```
java.io.FileNotFoundException: /home/user/.keystore (No such file or directory)
```

This indicates that Tomcat cannot find the keystore. The keytool utility creates the keystore as a file called `.keystore` in the current user's home directory. For Unix/Linux the home directory is likely to be `/home/<username>`. For Windows it is likely to be `C:\Documents And Settings\<UserName>`.

Make sure you are running JIRA as the same user who created the keystore. If this is not the case, or if you are running JIRA on Windows as a service, you will need to specify where the keystore file is in `conf/server.xml`. Add the following attribute to the connector tag you uncommented:

```
keystoreFile="<location of keystore file>"
```

Incorrect password

```
java.io.IOException: Keystore was tampered with, or password was incorrect
```

You used a different password than "changeit". You must either use "changeit" for both the keystore password and for the key password for Tomcat, or if you want to use a different password, you must specify it using the `keystorePass` attribute of the Connector tag, as described above.

Passwords don't match

```
java.io.IOException: Cannot recover key
```

You specified a different value for the keystore password and the key password for Tomcat. Both passwords must be the same.

Wrong certificate

```
javax.net.ssl.SSLException: No available certificate corresponds to the SSL cipher suites which
are enabled.
```

If the Keystore has more than one certificate, Tomcat will use the first returned unless otherwise specified in the SSL Connector in `conf/server.xml`.

Add the `keyAlias` attribute to the Connector tag you uncommented, with the relevant alias, for example:

```
<Connector port="8443" maxHttpHeaderSize="8192"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" disableUploadTimeout="true" useBodyEncodingForURI="true"
acceptCount="100" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS"
keystoreFile="/opt/local/.keystore"
keystorePass="removed"
keyAlias="tomcat"/>
```

Installing Confluence and JIRA Together

For information on Atlassian's recommendation on JIRA and Confluence installation, see Installing Confluence and JIRA Together.

You may also wish to read Integrating JIRA and Confluence for helpful information on integrating JIRA and Confluence.

> **Do not deploy multiple Atlassian applications in a single Tomcat container**
> Deploying multiple Atlassian applications in a single Tomcat container is **not supported.** We do not test this configuration and upgrading any of the applications (even for point releases) is likely to break it. There are also a number of known issues with this configuration (see this FAQ for more information).
>
> We also strongly recommend that you do not deploy multiple Atlassian applications in a single Tomcat container for a number of practical reasons. Firstly, you will need to shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in the Tomcat container will be inaccessible.

Changing JIRA Standalone's port

By default, JIRA Standalone runs on port **8080** (and hence is available at (http://<`yourserver`>:8080, eg. http://localhost:8080).

If you want to run another JIRA instance but already has a service claiming port **8080**, there will be a conflict, and JIRA will fail to start. You may see errors like this:

```
LifecycleException:  Protocol handler initialization failed: java.net.BindException: Address
already in use:8080
```

This can be fixed by changing JIRA to use another listening port (eg. **8090**) and shutdown port (eg. **8015**). This is done by editing `conf\server.xml` (eg. in Wordpad). The start of the file looks like:

```
<Server port="8005" shutdown="SHUTDOWN">

  <Service name="Catalina">

    <Connector port="8080"
      maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
      enableLookups="false" redirectPort="8443" acceptCount="100" connectionTimeout="20000"
disableUploadTimeout="true" />
```

Here, change the shutdown port from "**8005**" to "**8015**" and change the listening port from "**8080**" to "**8090**" (or some other free port — see below).

Then restart JIRA (bin\shutdown.bat; bin\startup.bat) and point a browser to http://`<yourserver>`:**8090** (eg. http://localhost:8090).

> If you are running on a Unix server and bind the ports below 1024 (such as port 80 for example), you will **need to start JIRA as root** in order to successfully bind to the port

Which port number should I choose?

If you are not sure which port number to choose, use a tool such as *netstat* to determine which port numbers are free to use by JIRA. The highest port number that can be used is 65535 because it is the highest number which can be represented by an unsigned 16 bit binary number. The Internet Assigned Numbers Authority (IANA) lists the registration of commonly used port numbers for well-known Internet services, it's advisable to avoid any of those ports.

A note about firewalls

When you choose a port number for JIRA, bear in mind that your firewall may prevent people from connecting to JIRA based on the port number. Organisations with a local network protected by a firewall typically need to consider modifying their firewall configuration whenever they install a web-based application (such as JIRA) that is running on a new port or host. Even personal laptop and desktop machines often come with firewall software installed that necessitates the same sort of change as described above.

If JIRA does not need to be accessed from outside the firewall, then no firewall configuration changes will be necessary.

> Note that Confluence Standalone also runs on port 8080 by default. If you're looking to change the port of Confluence Standalone, see Changing listen port for Confluence Standalone.

Integrating JIRA with a Web Server

The following pages contain information on integrating JIRA with a web server.

- Integrating JIRA with IIS
- Integrating JIRA with Apache

Integrating JIRA with IIS

> The content on this page relates to platforms which are not supported by JIRA. Consequently, Atlassian **can not guarantee providing any support for it**. Please be aware that this material is provided for your information only and using it is done so at your own risk.

This page describes how to configure Microsoft's IIS web server and JIRA such that IIS forwards requests on to JIRA, and responses back to the user. This is useful if you already have IIS running serving web pages (e.g. http://mycompany.com), and wish to integrate JIRA as just another URL (e.g. http://mycompany.com/jira).

JIRA is written in Java, and needs a Java Application Server (servlet container) to run. As IIS does not provide services of a Java Application Server, it is not possible to deploy JIRA directly into IIS. It is possible, however, to configure IIS to proxy requests for JIRA to an application server where JIRA is deployed. Therefore, if your main website is running in IIS, it is possible to integrate JIRA into this website.

If you need to integrate JIRA with IIS, JIRA needs to be deployed into a Java Application Server that provides IIS integration capability. Apache Tomcat is one of these application servers. The Standalone distribution of JIRA ships with Apache Tomcat, so if you are using the Standalone distribution or have deployed JIRA WAR into your own Tomcat instance, please follow this document.

If you are not using the Standalone distribution or Apache Tomcat, please consult your application server's documentation to determine whether it is possible to integrate with IIS and how to achieve it.

To integrate JIRA Standalone with IIS you will need to:

1. Configure JIRA and test that it works on its own
2. Configure Tomcat to accept proxied requests from IIS
3. Configure IIS to forward JIRA requests to Tomcat
4. *(Optional)* Configure IIS to forward Confluence requests to Tomcat (if you are using both Confluence and JIRA).

1. Configure JIRA

1. Follow the JIRA Standalone install guide to install and configure the Standalone distribution of JIRA; or deploy the EAR-WAR distribution into Apache Tomcat. Note that JIRA can be installed on the same machine as IIS, but this is not necessary.
2. Change the context path of the JIRA web application:
   To allow IIS to proxy requests to JIRA, JIRA web application must be deployed with a context path (e.g. the **/jira** in http://localhost:8080/jira) in Tomcat. The context path **must** be set to the path in the URL that IIS will use to proxy requests. For example, if your website is running with address `www.example.com` in IIS, and you would like to make JIRA available under `www.example.com/jira`, you will need to set JIRA's context path to "`/jira`" in Tomcat.

To do this, edit the `conf/server.xml` file (if you are using JIRA Standalone) or the `jira.xml` file (if you are using the EAR-WAR distribution of JIRA). Change the `path` attribute of the `Context` element to "`/jira`". For example, in JIRA Standalone 3.3 and later the `Context` element would look like:

```
<Context path="/jira" docBase="${catalina.home}/atlassian-jira"
            swallowOutput="true" reloadable="false">
```

3. Restart JIRA after changing the context path.
4. Set the '**Base URL**' to include the context path (see Configuring JIRA Options).
5. Turn JIRA's GZip compression **OFF** (since there will be no benefit from GZip compression once proxying is implemented).
6. Test that JIRA works correctly by pointing your web browser directly at Tomcat (e.g. http://localhost:8080/jira) and going through JIRA's Setup Wizard. If you have completed the Setup Wizard previously, try creating an issue or editing one. Please ensure that no errors occur.

2. Configure Tomcat to accept proxied requests

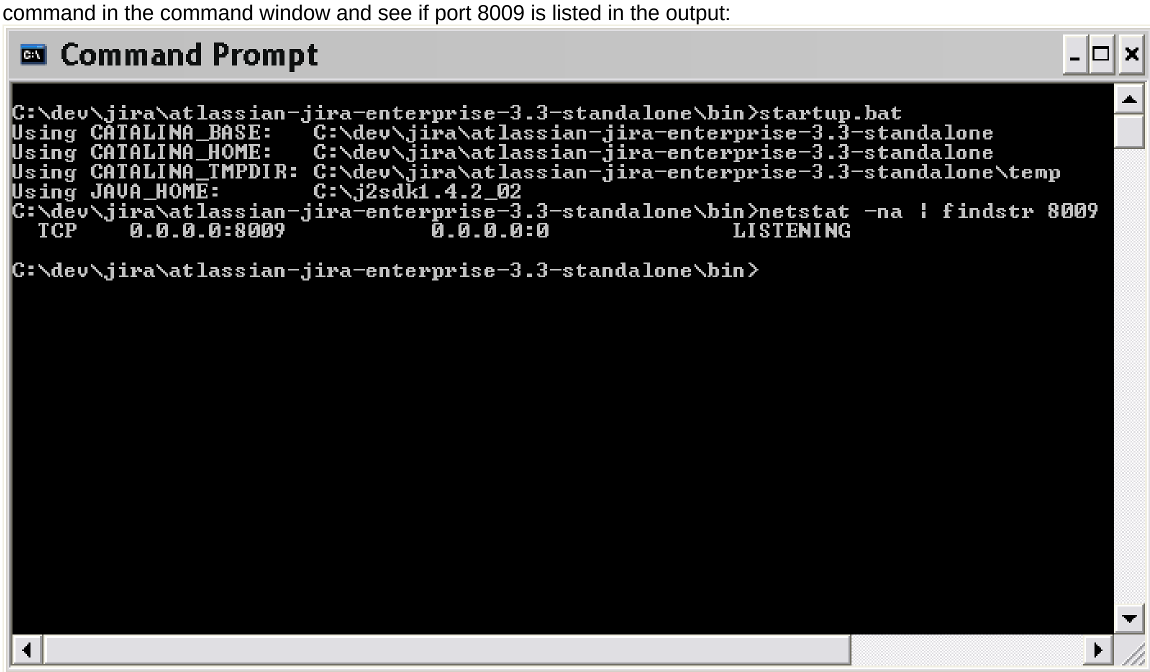
1. Enable **AJP/1.3 Connector** in Tomcat: To allow Tomcat to accept requests for JIRA from IIS, edit the `conf/server.xml` file and ensure that the **AJP/1.3 Connector** is enabled (i.e. *not* commented out).To enable the AJP/1.3 Connector in JIRA Standalone, Tomcat 5.5.x or Tomcat 5.0.x, remove the comment symbols (**<!-** ~~and~~ **->**) around the following section in the `conf/server.xml` file:

```
<Connector port="8009"
            enableLookups="false" redirectPort="8443" protocol="AJP/1.3" />
```

If you are using JIRA Standalone 3.2 or earlier or running JIRA in Tomcat 4.1.x the AJP/1.3 Connector definition in the `conf/server.xml` file looks like:

```
<Connector className="org.apache.coyote.tomcat4.CoyoteConnector"
            port="8009" minProcessors="5" maxProcessors="75"
            enableLookups="true" redirectPort="8443"
            acceptCount="10" debug="0" connectionTimeout="0"
            useURIValidationHack="false"
            protocolHandlerClassName="org.apache.jk.server.JkCoyoteHandler"/>
```

The above example configures Tomcat to listen for proxied IIS requests on port `8009`. If this port is already in use on the machine where JIRA is running, please change to another port.
2. Restart Tomcat and ensure that no errors regarding used ports appear in the logs or in the Tomcat Console.
3. Ensure that the AJP Connector is listening on the specified port (8009 by default). One way to do this is to use the "`netstat -na`" command in the command window and see if port 8009 is listed in the output:



3. Configure IIS to forward requests to JIRA

On the machine where IIS is deployed:

1. Download the ISAPI Redirect DLL from the Apache site. When downloading, choose the version of Windows that IIS is running on (either win32 or win64), and then **choose the latest available jk version**.

> The file to download is named **isapi_redirect_X.X.X.dll,** where 'X.X.X' is the version number. You will need to remove the version number from the DLL file (i.e. it needs to be named isapi_redirect.dll).

2. Place the DLL and the associated properties files in an installation directory. For the purpose of this document, we will assume the directory is `C:\tomcat_iis_connector`. Place the **isapi_redirect.dll** in this directory. Then download the isapi_redirect.properties file and place this in the same directory as the **isapi_redirect.dll** file.
3. Create a directory called 'conf' in your installation directory (`C:\tomcat_iis_connector\conf`). Download the files uriworkermap.properties and workers.properties.minimal and place them in the `C:\tomcat_iis_connector\conf` directory.
4. Create a directory called 'logs' (`C:\tomcat_iis_connector\logs`). This is where the logs associated with the **isapi_redirect.dll** execution will be placed.
5. In the "`C:\tomcat_iis_connector`" directory you may need to modify the `isapi_redirect.properties` file. The `isapi_redirect.properties` file tells the connector where to find its configuration files and where the DLL can be found in relation to the IIS server. There are 5 properties in this file:
    a. extension_uri — the path to the virtual directory that contains the **isapi_redirect.dll**
    b. log_file — the path to write the log file to
    c. log_level — the level at which the logs should be generated
    d. worker_file — the path to your `workers.properties.minimal` file in your installation
    e. worker_mount_file — the path to your `uriworkermap.propertiesl` file in your installation.
    If you are installing the connector in `C:\tomcat_iis_connector` and you follow the instructions below about setting up the virtual directory for the **isapi_redirect.dll,** then you should not have to change any properties in the provided file.
6. In the "`C:\tomcat_iis_connector\conf`" directory you may need to modify the `uriworkermap.properties` and the `workers.properties.minimal` files.

> The provided files contain the changes mentioned here and should work if you completely follow this document. **If you have deviated from this document, then you will need to modify these files as described below.**

The `workers.properties.minimal` file tells IIS where (IP address and port) Tomcat is running. The `uriworkermap.properties` tells IIS what requests to proxy to Tomcat.
To edit these files:

a. Edit the `uriworkermap.properties` and ensure that it contains the following mapping for JIRA. You do not need any other mappings.

```
/jira/*=worker1
```

> The mapping (e.g. `/jira/`**) *must** be the same as the context path that JIRA has been deployed with in Tomcat as described in the Configure JIRA section of this document.

b. Edit the `workers.properties.minimal` file and modify the `worker.ajp13w.host` property if necessary. This property should be set to the host name or the IP address of the machine where Tomcat (with JIRA) is running. If Tomcat is running on the same machine as IIS then you can leave the property set to `localhost`. If you have specified a host name as the value of this property, please ensure that the IIS machine can correctly resolve it to the appropriate IP address.
c. If you have modified the port for the AJP Connector you will need to modify the `worker.ajp13w.port` property. Here is an example of the file with Tomcat running on the same machine as IIS and using the default port (8009) for AJP:

```
worker.list=worker1

#
# Defining a worker named worker1 and of type ajp13.
# Note that the name and the type do not have to match.
#
worker.worker1.type=ajp13
worker.worker1.host=localhost
worker.worker1.port=8009
```

7. Open **Control Panel,** then **Administrative Tools** and open **Internet Information Services.**
8. **IIS 7.0 only:** If you are using **IIS 7.0,** you will need to install two required service roles, ISAPI Extensions and ISAPI Filters:
    a. Navigate to Start Menu > All Programs > Administration Tools > Service Manager.
    b. Select 'Web Server (IIS)' in Server Manager > Roles.
    c. Click 'Add Role Services' and follow the Wizard.
9. Add an **ISAPI Filter** to IIS, as described below:
    - **IIS 6.0 or earlier:**
        a. Right-click on **Default Web Site** (or the Web Site that should be responsible for proxying requests to JIRA), and click on **Properties.**
        b. Click the **ISAPI Filters** tab.
        c. Check if there is a Filter that points to the `isapi_redirect.dll` file and that it is in the right location. If not, click **Add** and create one. Enter `tomcat` as the Filter Name and enter the location of the `isapi_redirect.dll` file for the executable.

   d. Click **Apply** and then **OK.**
- **IIS 7.0:**
   a. Click the **Default Web Site** (or the Web Site that should be responsible for proxying requests to JIRA), and click on **ISAPI Filters.**
   b. Click the **ISAPI Filters** icon.
   c. Check if there is a Filter that points to the `isapi_redirect.dll` file and that it is in the right location. If not, click **Add** and create one. Enter `tomcat` as the Filter Name and enter the location of the `isapi_redirect.dll` file.
   d. Click **OK.**

10. Create a **virtual directory** for JIRA in IIS.
   a. Right-click on **Default Web Site** (or the Web Site that should be responsible for proxying requests to JIRA), choose **New** and then **Virtual Directory.**
   b. Go through the creation wizard. Set the `alias` as the value of the Context Path (without slashes) that was set in the Configure JIRA section of this document (see above). In our example this is `jira` .
   c. This can point to any directory.
   d. Complete the wizard.

> The reason for creating a virtual directory is so that requests without the trailing slash still work. For example, if you are deploying JIRA under `http://www.example.com/jira/` without the virtual directory, then requests to `http://www.example.com/jira` will fail.

11. Create a **virtual directory** for access to the **isapi_redirect.dll** in IIS, as described below:
- **IIS 6.0 or earlier:**
   a. Right-click on **Default Web Site** (or the Web Site that should be responsible for proxying requests to JIRA), choose **New** and then **Virtual Directory.**
   b. Go through the creation wizard. Set the `alias` to be `jakarta` .
   c. This must point to the directory in which the **isapi_redirect.dll** is installed. In our example this is `C:\tomcat_iis_connector`.
   d. Complete the wizard, making sure that you grant the 'Execute' permission for the **Virtual Directory** by checking the 'Execute' checkbox.
- **IIS 7.0:**
   a. Right-click on **Default Web Site** (or the Web Site that should be responsible for proxying requests to JIRA), and choose **Add Virtual Directory.**
   b. Set the `alias` to be `jakarta` .
   c. **Physical Path** must point to the directory in which the **isapi_redirect.dll** is installed. In our example this is `C:\tomcat_iis_connector`.
   d. Click the 'jakarta' Virtual Directory and double-click 'Handler Mappings'.
   e. Click 'Edit Feature Permissions' in the Action panel on the right-hand side.
   f. Check the 'Execute' permission checkbox.

> This Virtual Directory is needed for the connector to work. The alias that you give the directory needs to be the same as the path set in the `isapi_redirect.properties` file, `extension_uri` property. In our example this value is: `/jakarta/isapi_redirect.dll`.

12. If using IIS 6.0 or 7.0, you will need to add the dll as a **Web Service Extension,** as described below.
- **IIS 6.0:**
   a. Right-click on **Web Service Extensions** and choose **Add a new Web Service Extension...**
   b. Enter `tomcat` for the **Extension Name** and then add the `isapi_redirect.dll` file to the required files.
   c. Select the **Set extension status to Allowed** check-box, then click **OK.**
- **IIS 7.0:**
   a. Navigate to the servers and highlight your server.
   b. Navigate to 'ISAPI and CGI Restrictions'.
   c. Add and allow the isapi_redirect.dll extension.

13. You will need to restart the IIS Service. To do this, browse to **Control Panel,** click **Administrative Tools,** click on **Services,** find the IIS Admin Service and click **restart.**
14. You are done! To test the configuration, point your web browser at IIS and append JIRA's context path to the URL. For example, if your website is running under the address of `http://www.example.com` and you have deployed JIRA with the context path of `jira`, point your browser at `http://www.example.com/jira`.

4. Configure IIS to forward requests to Confluence as well as JIRA

You can configure IIS so that it forwards requests to both JIRA and Confluence.

The following instructions describe how to forward from IIS to separate instances of JIRA and Confluence, running in separate Tomcat servers. The instructions assume that you have already set up IIS to forward to JIRA as described in section 3 above. The instructions also assume that you have already installed Confluence as per the Confluence Installation Guide.

The instructions describe how to make JIRA available under `www.example.com/jira` as described above, and Confluence available under `www.example.com/confluence`.

1. If JIRA and Confluence are running on the same machine, ensure that Confluence is listening on a different port to JIRA:Edit the `conf/server.xml` file (if you are using Confluence Standalone) or the `jira.xml` file (if you are using the EAR-WAR distribution of Confluence). At the top of the file, change the `port` attribute of the `Server` element to a different port to the value for JIRA. For

example, change it from `8005` to `8006`.
Still in the `Server` element, Change the `port` attribute of the `Connector` sub-element to a different port to the value for JIRA. For example, change it from `8080` to `8090` .
2. Change the Confluence context path:Edit the `conf/server.xml` file (if you are using Confluence Standalone) or the `jira.xml` file (if you are using the EAR-WAR distribution of Confluence). Change the `path` attribute of the `Context` element to "`/confluence`".
3. Restart Confluence after changing the ports and the context path, and test that Confluence works correctly by pointing your web browser at http://localhost:8090/confluence.
4. Configure Confluence to accept proxied requests:Remove the comments around the AJP/1.3 Connector section in the Confluence `conf/server.xml` or `jira.xml` file and change the `port` attribute to a value different to the value for JIRA. For example, change it from `8009` to `8010`.
5. Restart Confluence and ensure that no errors regarding used ports appear in the logs or in the Tomcat console.
6. Edit the `uriworkermap.properties` file and add the following mapping:

```
/confluence/*=worker2
```

The file should now contain the following mappings:

```
/jira/*=worker1
                    /confluence/*=worker2
```

7. Edit the `workers.properties.minimal` file:
Change the line starting with `worker.list` to the following:

```
worker.list=worker1,worker2
```

Add the following lines to the end of the file (assuming the host is on the same machine as IIS and you changed the AJP/1.3 Connector port for Confluence to `8010`):

```
worker.worker2.type=ajp13
                    worker.worker2.host=localhost
                    worker.worker2.port=8010
```

The `workers.properties.minimal` file should now look like the following:

```
worker.list=worker1,worker2

#
# Defining a worker named worker1 and of type ajp13.
# Note that the name and the type do not have to match.
#
worker.worker1.type=ajp13
worker.worker1.host=localhost
worker.worker1.port=8009

worker.worker2.type=ajp13
worker.worker2.host=localhost
worker.worker2.port=8010
```

8. Create a **virtual directory** for Confluence in IIS. Set the `alias` to `confluence`. It can point to any directory.
9. Restart the IIS Service.
10. You are done! Confluence should now be available under `www.example.com/confluence`, and JIRA should still be available under `www.example.com/jira`.

Troubleshooting

- ***Whenever I go to JIRA in my browser, a login panel pops up. I enter a valid username and password for JIRA, but the panel pops up again.***Make sure that you have Anonymous Access set on the `jira` virtual directory in IIS. It will be set to that if you have followed the above instructions.To check this:
  1. In **'Internet Information Services',** right click the `jira` virtual directory and choose **'Properties'.**
  2. Click the **'Directory Security'** tab.
  3. Click the **'Edit...'** button in the **'Anonymous access and authentication control'** section.
  4. Make sure that the **'Anonymous access'** tick box is selected, and make sure that nothing is selected in the **'Authenticated access'** section. Do not select **'Basic authentication'.** Do not select **'Integrated Windows authentication'.**

- ***Whenever I go to JIRA in Internet Explorer, a login panel pops up. I enter a valid username and password for JIRA, but the panel pops up again. This doesn't happen, however, in another browser such as Firefox or Safari. I can successfully log in to JIRA in those browsers.***Make sure that you have Internet Explorer's **User Authentication** set to **Anonymous login.** To check this:
  1. In Internet Explorer, click the **'Tools'** menu and select **'Internet Options'.**

2. Click the **'Security'** tab.
3. Select the security zone that the JIRA server is in.
4. Click the **'Custom level...'** button.
5. Scroll right down to the bottom to the **'User Authentication'** section.
6. Select **'Anonymous logon'** (if it is not already selected).
7. Click the **'OK'** button on this screen, and again on the next screen.
8. Restart Internet Explorer.

- ***When I try to navigate to my JIRA instance at http://localhost/jira in my browser, it prompts me to download a file with nonsensical information, rather than showing me my JIRA instance.*** Make sure that you have granted the 'Execute' permission to your Virtual Directory for JIRA in IIS. See step 11 of the '3. Configure IIS to forward requests to JIRA' section in this document for detailed instructions.

Known Issues

- **64 bit IIS:** If you are running a 64 bit OS, please use a 64 bit version of the Tomcat IIS connector.
- **Customer submitted solution:** If you must use a 32 bit IIS connector, you can do so by clicking `Application Pools > Advanced Settings > Allow 32bit applications`.
- **Customer submitted solution:** You need to set the ISAPI extension on the website.

Integrating JIRA with Apache

The content on this page relates to platforms which are not supported by JIRA. Consequently, Atlassian **can not guarantee providing any support for it**. Please be aware that this material is provided for your information only and using it is done so at your own risk.

This page describes how to integrate an Apache web server with JIRA (via mod_proxy), such that Apache forwards requests on to JIRA, and responses back to the user. This is useful if you already have Apache serving web pages on port 80 (e.g. http://mycompany.com), and wish to integrate JIRA as just another URL (eg. http://mycompany.com/jira).

You can only configure JIRA to respond to a single URL, and your Base URL setting must match the URL end users are requesting. You cannot (for example) have a different hostname or URL for internal and external users. This is especially important for JIRA 4.0 or higher, as any mismatch between the Base URL and the URL requested by the end user will cause problems with dashboard gadgets.

This documentation describes a straightforward implementation of mod_proxy. If you require a more complex solution, refer to Apache HTTP Server Version Documentation and, if necessary, consult with someone in your organisation who is knowledgeable in the configuration of Apache.

- Step 1: Configure JIRA's application server
- Step 2: Configure Apache
  - Enable mod_proxy and mod_proxy_http
  - Configure mod_proxy
  - Terminating an SSL connection at Apache
- Troubleshooting
- See Also

Step 1: Configure JIRA's application server

Here we assume you are using the JIRA Standalone distribution, which comes with Tomcat. First, we need to edit Tomcat's **conf/server.xml** file, and set the context path:

```
<Server port="8005" shutdown="SHUTDOWN">

        <Context path="/jira" docBase="${catalina.home}/atlassian-jira" reloadable="false">
          <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            ....
```

Here we have set the context path to **/jira,** assuming JIRA will be running on http://mycompany.com/jira/.

Restart Tomcat, and ensure you can still access JIRA normally (eg. at `http://localhost:8080/jira/`).

Note: if you want Tomcat responsible for all URLs, specify a blank context path with `path=""` -- *not* `path="/"` .

Turn JIRA's GZip compression **OFF** (since there will be no benefit from GZip compression once proxying is implemented, and in fact GZIP has been reported to cause performance problems in this situation).

Step 2: Configure Apache

Assuming an Apache 2 installation, the following needs to be done:

Enable mod_proxy and mod_proxy_http

The exact steps will be specific to your operating system. Refer to the Apache documentation for your operating system. On Debian/Ubuntu it is done as follows:

```
teacup:/etc/apache2# a2enmod proxy_http
Enabling proxy as a dependency
Module proxy installed; run /etc/init.d/apache2 force-reload to enable.
Module proxy_http installed; run /etc/init.d/apache2 force-reload to enable.
teacup:/etc/apache2#
```

Configure mod_proxy

Here we create a config snippet for JIRA, in **sites-available/jira-mod_proxy:**

```
teacup:/etc/apache2# cd sites-available

teacup:/etc/apache2/sites-available# cat > jira-mod_proxy

<Proxy *>
Order deny,allow
Allow from all
</Proxy>

ProxyRequests       Off
ProxyPreserveHost On
ProxyPass           /jira       http://localhost:8080/jira
ProxyPassReverse    /jira       http://localhost:8080/jira

teacup:/etc/apache2/sites-available#
teacup:/etc/apache2/sites-available# a2ensite jira-mod_proxy
Site jira-mod_proxy installed; run /etc/init.d/apache2 reload to enable.

teacup:/etc/apache2/sites-available# /etc/init.d/apache2 reload
Reloading apache 2.0 configuration....
teacup:/etc/apache2/sites-available#
```

JIRA should now be integrated with Apache. You should be able to view JIRA at `http://localhost/jira` (i.e. on port 80).

Terminating an SSL connection at Apache

To add an SSL connection that terminates at Apache, using HTTP to connect to JIRA behind it, most of the relevant configuration is:

```
Listen 443

NameVirtualHost *:443
<VirtualHost *:443>
    SSLEngine On
    SSLCertificateFile /etc/apache2/ssl/apache.pem
    ProxyPass / http://localhost:8080/
    ProxyPassReverse / http://localhost:8080/
</VirtualHost>
```

Notes:

- The path '/jira' **must** be the same as the context path in Tomcat's conf/server.xml
- The **ProxyPreserveHost** directive allows Tomcat to know its public hostname and port. Without this, JIRA would redirect the public URL (e.g. `http://mycompany.com/jira/`) to `http://localhost:8080/jira/secure/Dashboard.jspa` .

> If the links for Printable Version, RSS feeds, Word export and Excel export have incorrect URLs, starting with `localhost:8080/jira` instead of `http://mycompany.com/jira` , ensure that **ProxyPreserveHost** is set to **On.**

ProxyPreserveHost is only available on Apache 2. For Apache 1.1-1.3.x, you should instead specify **proxyName** and **proxyPort** attributes in Tomcat as follows:

```
<Server port="8005" shutdown="SHUTDOWN">

  <Service name="Catalina">

    <Connector port="8080"
      maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
      enableLookups="false" redirectPort="8443" acceptCount="100" connectionTimeout="20000"
disableUploadTimeout="true"
      proxyName="mycompany.com" proxyPort="80" />

    <Engine name="Catalina" defaultHost="localhost">
      <Host name="localhost" appBase="webapps" unpackWARs="true" autoDeploy="true">

        <Context path="/jira" docBase="${catalina.home}/atlassian-jira" reloadable="false">
          <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            ....
```

If you are using Apache 1.x, make sure you **don't** use caching (CacheRoot directive).

Some users have reported problems with user sessions being hijacked when the mod_cache module is enabled. If you have such problems, disable the **mod_cache** module. Note that this module is enabled by default in some Apache 2 distributions.

Troubleshooting

- On **Fedora Core 4,** people have reported 'permission denied' errors when trying to get mod_proxy (and mod_jk) working. Disabling SELinux (`/etc/selinux/config`) apparently fixes this.
- If you are on Mac OS X:
  - If your gadgets are returning 404 errors, you may need to add the following to Tomcat's <Connector> tag (use port 443 instead of 80 if you're using SSL and terminating it at Apache):

    ```
    proxyName="your-front-facing-domain.com" proxyPort="80"
    ```

  - Please disable **webperfcache,** which proxies port 80 by default. A user reported this as the likely cause of JIRA session problems, in the form of users' identities becoming mixed up:

    ```
    The OSX Servers enable webperfcache by default for Virtual Hosts, which for static
    content
            would be great, but for dynamic sites (which ALL of ours are) it is Evil and
    causes many
            issues.  Of note recently was the jira session issue. Also see :-

    http://developer.apple.com/documentation/Darwin/Reference/ManPages/man8/webperfcache.8.h
    http://www.wodeveloper.com/omniLists/webobjects-admin/2005/January/msg00009.html
            Unfortunately even if you disable webperfcache for a site, if there is a
    single site enabled
            then all sites will still proxy through webperfcache with resulting session
    problems.
    ```

- In general, if you are having problems:
  1. Ensure that JIRA works as expected when running directly from Tomcat on http://localhost:8080/jira
  2. Watch the log files (usually in /var/log/httpd/ or /var/log/apache2/). Check that you have a **LogLevel** directive in your httpd.conf, and turn up logging **('LogLevel debug')** to get more info.
  3. Check out the Knowledge Base .

See Also

- Integrating JIRA with Apache using SSL
- Configuring Apache Reverse Proxy Using the AJP Protocol
- For more advanced mod_webapp configurations (eg. SSL), see this mod_proxy guide.

Configuring Apache Reverse Proxy Using the AJP Protocol

The content on this page relates to platforms which are not supported by JIRA. Consequently, Atlassian **can not guarantee providing any support for it**. Please be aware that this material is provided for your information only and using it is done so at your own risk.

- Step 1: Configure JIRA's application server
- Step 2: Configure the Apache server
  - Using Apache 2.0.x
  - Using Apache 2.2.x
- See Also

Step 1: Configure JIRA's application server

Enable the AJP Connector on the Tomcat container hosting JIRA by uncommenting the following element in $JIRA_HOME/conf/server.xml:

```
<Connector port="8009" URIEncoding="UTF-8" enableLookups="false" redirectPort="8443"
protocol="AJP/1.3" />
```

Step 2: Configure the Apache server

Using Apache 2.0.x

1. Apache 2.0.x users must install `mod_jk` and configure it by adding the following to `httpd.conf` or included files:

    ```
    LoadModule jk_module modules/mod_jk.so
    JkWorkersFile conf/workers.properties
    JkLogFile logs/mod_jk.log
    JkLogLevel info
    ```

2. Add the following lines inside the `VirtualHost` tag, presenting JIRA to the userbase:

    ```
    JkMount /jira jira_worker
    JkMount /jira/* jira_worker
    ```

3. Define the connections to the JIRA application in the `conf/workers.properties` file:

    ```
    worker.jira_worker.host=JIRA_HOST_NAME
    worker.jira_worker.port=AJP_CONNECTOR_PORT (usually 8009)
    worker.jira_worker.type=ajp13
    ```

Using Apache 2.2.x

Apache 2.2.x users can opt for native protocol support using `mod_proxy_ajp`.

1. Enable `mod_proxy` and `mod_proxy_ajp` submodule for protocol support in `httpd.conf`:

    ```
    LoadModule proxy_module modules/mod_proxy.so
    LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
    ```

2. Add the following in the `VirtuaHost` presenting JIRA:

    ```
    ProxyRequests Off

    <Proxy *>
    Order deny,allow
    Allow from all
    </Proxy>

    ProxyPass / ajp://JIRA_HOST_NAME:AJP_CONNECTOR_PORT/
    ProxyPassReverse / ajp://JIRA_HOST_NAME:AJP_CONNECTOR_PORT/
    ```

See Also

- Integrating JIRA with Apache
- Integrating JIRA with Apache using SSL

Integrating JIRA with Apache using SSL

The content on this page relates to platforms which are not supported by JIRA. Consequently, Atlassian **can not guarantee providing any support for it**. Please be aware that this material is provided for your information only and using it is done so at your own risk.

This page describes using an SSL connection between Apache and Tomcat, which is not a common configuration. This connection is usually unnecessary as it's behind the firewall and the SSL connection can terminate on Apache, and use an HTTP to connect to Tomcat. For information on integrating JIRA with Apache *without* SSL, use the Integrating JIRA with Apache documentation. For the specific configuration of terminating the SSL connection at Apache, find the "Terminating an SSL connection at Apache" section.

If you want to use https (e.g. `https://mycompany.com/jira/`), then:

- Step 1. In Apache, ensure SSLProxyEngine is on
- Step 2. Configure Tomcat to use SSL (JIRA Standalone)
- Step 3. Import Apache's public SSL key into Tomcat's keystore
    - Obtain the server's public key:
    - Import the public key
- Step 4. Restart the app server
- Note: Alternative keystore locations
- Note: Alternative configuration if HTTPS is terminated on the proxy server

Step 1. In Apache, ensure SSLProxyEngine is on

- In the Apache config (`/etc/apache2/sites-available/jira-mod_proxy`), ensure you have **SSLProxyEngine on** specified, and redirect `/jira` to `https://localhost:8443/jira`:

```
<Proxy *>
Order deny,allow
Allow from all
</Proxy>

SSLProxyEngine on
ProxyRequests       Off
ProxyPreserveHost On
ProxyPass           /jira       https://localhost:8443/jira
ProxyPassReverse    /jira       https://localhost:8443/jira
```

- Please ensure that the ProxyPass and ProxyPassReverse directives do not include a trailing '/'. There have been reports that this may cause problems in JIRA 3.7 and above when serving static resources (javascript and css).

Step 2. Configure Tomcat to use SSL (JIRA Standalone)

Edit `conf/server.xml`, and at the bottom before the </Service> tag, add this section (or uncomment it where you find it):

```
<Connector port="8443" maxHttpHeaderSize="8192"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" disableUploadTimeout="true" useBodyEncodingForURI="true"
acceptCount="100" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS" />
```

This enables SSL access on port 8443 (the default for https is 443, but just as Tomcat uses 8080 instead of 80 to avoid conflicts, 8443 is used instead of 443 here).

Step 3. Import Apache's public SSL key into Tomcat's keystore Obtain the server's public key:

To quote Microsoft; "consult your system administrator". The public/private key pair will live somewhere on the server. The public key should be located and copied to the server hosting JIRA/Confluence. For example:

```
scp root@mail.yourcompany.com:/etc/ssl/certs/httpd.pem .
```

If you have openssl installed locally, the key can be retrieved with a command like:

```
donna-mcgahans-macbook-pro:~ dmcgahan$ openssl s_client -connect support.atlassian.com:https
CONNECTED(00000003)
depth=1 /C=US/O=DigiCert Inc/OU=www.digicert.com/CN=DigiCert Global CA
verify error:num=20:unable to get local issuer certificate
verify return:0
---
Certificate chain
 0 s:/C=au/ST=NSW/L=Sydney/O=ATLASSIAN SOFTWARE SYSTEMS PROPRIETARY
LIMITED/OU=IT/CN=*.atlassian.com
   i:/C=US/O=DigiCert Inc/OU=www.digicert.com/CN=DigiCert Global CA
 1 s:/C=US/O=DigiCert Inc/OU=www.digicert.com/CN=DigiCert Global CA
   i:/C=US/O=Entrust.net/OU=www.entrust.net/CPS incorp. by ref. (limits liab.)/OU=(c) 1999
Entrust.net Limited/CN=Entrust.net Secure Server Certification Authority
---
Server certificate
-----BEGIN CERTIFICATE-----
MIIGYDCCBUigAwIBAgIQCi1wR9xdR7qYjJaF4e+4YDANBgkqhkiG9w0BAQUFADBc
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNlcnQgSW5jMRkwFwYDVQQLExB3
d3cuZGlnaWNlcnQuY29tMRswGQYDVQQDExJEaWdpQ2VydCBHbG9iYWwgQ0EwHhcN
MDgwMTEwMDAwMDAwWhcNMTEwMTEzMjM1OTU5WjCBjDELMAkGA1UEBhMCYXUxDDAK
BgNVBAgTA05TVzEPMA0GA1UEBxMGU3lkbmV5MTcwNQYDVQQKEy5BVExBU1NJQU4g
U09GVFdBUkUgU1lTVEVNUyBQUk9QUklFVEFSWSBMSU1JVEVEMQswCQYDVQQLEwJJ
VDEYMBYGA1UEAxQPKi5hdGxhc3NpYW4uY29tMIGfMA0GCSqGSIb3DQEBAQUAA4GN
ADCBiQKBgQDKjT2WNJaRLC2q/QEndjdVtriS/qMQfeX+sXgz4tSN+jd1zupOzuDo
xUfTilVLIt8aR5/bSa+XY3ykj5RcNRxki7Q/rr30FANY3cKCxY2TYZjVoPYVipnW
VDubtpjvUywE6E5LwI33oFqqnhL+HzEOioXOBHdU2/tZHj8n0VR7hQIDAQABo4ID
bzCCA2swHwYDVR0jBBgwFoAUp8cToHoBPJ3vgkiCSNVzUbYSViowHQYDVR0OBBYE
FOibDc5A2xBHAf8MBqnaEFQJswQBMCkGA1UdEQQiMCCCDyouYXRsYXNzaWFuLmNv
bYINYXRsYXNzaWFuLmNvbTB2BggrBgEFBQcBAQRqMGgwJAYIKwYBBQUHMAGGGGh0
dHA6Ly9vY3NwLmRpZ2ljZXJ0LmNvbTBABggrBgEFBQcwAoY0aHR0cDovL3d3dy5k
aWdpY2VydC5jb20vQ0FDZXJ0cy9EaWdpQ2VydEdsb2JhbENBLmNydDAOBgNVHQ8B
Af8EBAMCBaAwDAYDVR0TAQH/BAIwADB/BgNVHR8EeDB2MDmgN6A1hjNodHRwOi8v
Y3JsMy5kaWdpY2VydC5jb20vRGlnaUNlcnRHbG9iYWxDQS0yMDA4YS5jcmwwOaA3
oDWGM2h0dHA6Ly9jcmw0LmRpZ2ljZXJ0LmNvbS9EaWdpQ2VydEdsb2JhbENBLTIw
MDhhLmNybDCCAcYGA1UdIASCAb0wggG5MIIBtQYLYIZIAYb9bAEDAAEwggGkMDoG
CCsGAQUFBwIBFi5odHRwOi8vd3d3LmRpZ2ljZXJ0LmNvbS9zc2wtY3BzLXJlcG9z
aXRvcnkuaHRtMIIBZAYIKwYBBQUHAgIwggFWHoIBUgBBAG4AeQAgAHUAcwBlACAA
bwBmACAAdABoAGkAcwAgAEMAZQByAHQAaQBmAGkAYwBhAHQAZQAgAGMAbwBuAHMA
dABpAHQAdQB0AGUAcwAgAGEAYwBjAGUAcAB0AGEAbgBjAGUAIABvAGYAIAB0AGgA
ZQAgAEQAaQBnAGkAQwBlAHIAdAAgAEMAUAAvAEMAUABTACAAYQBuAGQAIAB0AGgA
ZQAgAFIAZQBsAHkAaQBuAGcAIABQAGEAcgB0AHkAIABBAGcAcgBlAGUAbQBlAG4A
dAAgAHcAaABpAGMAaAAgAGwAaQBtAGkAdAAgAGwAaQBhAGIAaQBsAGkAdAB5ACAA
YQBuAGQAIABhAHIAZQAgAGkAbgBjAG8AcgBwAG8AcgBhAHQAZQBkACAAaABlAHIA
ZQBpAG4AIABiAHkAIAByAGUAZgBlAHIAZQBuAGMAZQAuMB0GA1UdJQQWMBQGCCsG
AQUFBwMBBggrBgEFBQcDAjANBgkqhkiG9w0BAQUFAAOCAQEAspPrcCoRqI94BaPB
vujILnWqhnAjGp9QAI08YKNtAXp6X65Ytl48f3VOLivqCwVesm7FM7lXpFf46Kbj
9kfii/003x8+0rJo34lJcTIPO0EEu1tbvHKDcueII16g8Sfnpm9xZNi8imVunB6K
r9ID9Bl+ROl3u9wf6JgYIVeMxMD8lGKqCckjOimErIuB3Ca/A+L6+8eAp0/Y0yyE
z7cCI7kllKdjTvu5Y/GoN/cyBYKv57LeUrrNr7uMuyk0TJq0bFUl4KRMY6u3Rihe
zYNouvdneLKqlOwk4tBPODGm6LN0ubQc9C3J4pkrHhzEGXsEnk21O9syQ7ym9/1B
5++R3Q==
-----END CERTIFICATE-----
```

Cut and paste the certificate (including BEGIN and END lines) into a local file (eg. httpd.pem).

Import the public key

To do this, you need to use the `keytool` program that comes with Java. If you haven't already, add `$JAVA_HOME/bin` to your PATH, and then run the following:

```
jturner@teacup:~$ sudo keytool -import -alias mail.yourcompany.com -keystore
$JAVA_HOME/jre/lib/security/cacerts -file imapd.pem
Enter keystore password:  changeit
Owner: EMAILADDRESS=info@atlassian.com, CN=atlassian.com, O=Atlassian, L=Sydney, ST=NSW, C=AU
Issuer: EMAILADDRESS=info@atlassian.com, CN=atlassian.com, O=Atlassian, L=Sydney, ST=NSW, C=AU
Serial number: 0
Valid from: Fri Feb 11 14:09:05 EST 2005 until: Sat Feb 11 14:09:05 EST 2006
Certificate fingerprints:
MD5:  CB:AE:7D:5D:1A:08:06:77:93:3B:0F:53:BB:40:C0:D4
SHA1: 7C:02:44:0D:A9:8F:F9:FB:BB:7B:C6:F1:52:DE:CA:00:17:D9:3A:A0
Trust this certificate? [no]:  yes
Certificate was added to keystore
```

This will import the public key (imapd.pem) into Java's default keystore, and marks it as trusted.

On Windows the command is similar, eg.:

```
C:\Program Files\Java\jre1.6.0_05>bin\keytool -import -file c:\certs\imapd.pem -alias
mail.yourcompany.com -keystore lib\security\cacerts
Enter keystore password:
Owner: CN=*.atlassian.com, OU=IT, O=ATLASSIAN SOFTWARE SYSTEMS PROPRIETARY LIMITED, L=Sydney,
ST=NSW, C=au
Issuer: CN=DigiCert Global CA, OU=www.digicert.com, O=DigiCert Inc, C=US
Serial number: a2d7047dc5d47ba988c9685e1efb860
Valid from: Thu Jan 10 11:00:00 EST 2008 until: Fri Jan 14 10:59:59 EST 2011
Certificate fingerprints:
         MD5:  9D:B4:9F:3D:0A:DE:6A:BD:BC:3D:95:BE:60:BD:70:02
         SHA1: 67:C6:E9:C8:3F:F1:7A:3C:66:E2:CE:62:78:A1:66:84:35:5E:62:1E
         Signature algorithm name: SHA1withRSA
         Version: 3
.....

Trust this certificate? [no]:  yes
Certificate was added to keystore

C:\Program Files\Java\jre1.6.0_05>
```

Step 4. Restart the app server

Restart, and if everything is correct, your webapp should now connect to the SSL resource without problems.

Note: Alternative keystore locations

Java will normally use a system-wide keystore in `$JAVA_HOME/jre/lib/security/cacerts`, but it is possible to use a different keystore by specifying a parameter, **-Djavax.net.ssl.trustStore=/path/to/keystore**, where '/path/to/keystore' is the absolute file path of the alternative keystore.

Setting this **is not recommended**, however, because if Java is told to use a custom keystore (eg. containing a self-signed certificate), then Java will not have access to the root certificates of signing authorities found in `$JAVA_HOME/jre/lib/security/cacerts`, and accessing most CA-signed SSL sites will fail. It is better to add new certificates (eg. self-signed) to the system-wide keystore (as above).

There is also a per-user truststore (~/.keystore) but (at least on Linux), but its contents do not appear to be logically appended to those in the system-wide keystore; ie. it is entirely separate, and only used if one specifies `-Djavax.net.ssl.trustStore=/home/<user>/.keystore`. This has the same disadvantage described above with custom keystores, so the per-user truststore is best avoided.

Note: Alternative configuration if HTTPS is terminated on the proxy server

If HTTPS is terminated on the proxy server, i.e.:

```
Client Browser --> HTTPS --> Apache proxy --> HTTP --> Tomcat/JIRA
```

then you will need to configure steps 1 and 2 slightly differently.

Specifically a HTTP Connector needs to be defined (identical to the default 8080 Connector) with the addition of the following attributes: **`scheme="https", proxyName="<proxy_server>", proxyPort="<proxy_port>"`**

Default connector:

```
<Connector port="8080" protocol="HTTP/1.1"
               connectionTimeout="20000"
               redirectPort="8443"
               URIEncoding="UTF-8"
               useBodyEncodingForURI="true"
 />
```

Connector that supports HTTPS terminated on the proxy server:

```
<Connector port="8080" protocol="HTTP/1.1"
               connectionTimeout="20000"
               redirectPort="8443"
               URIEncoding="UTF-8"
               useBodyEncodingForURI="true"

               <!-- The below are new lines to add - the above is untouched -->
               scheme="https"
               proxyName="<proxy_server>"
               proxyPort="443"
 />
```

In this scenario, the Apache `httpd.conf` file needs to be modified from:

```
ProxyPass              /jira       https://localhost:8443/jira
ProxyPassReverse       /jira       https://localhost:8443/jira
```

to

```
ProxyPass              /jira       http://localhost:8080/jira
ProxyPassReverse       /jira       http://localhost:8080/jira
```

(Note the changes to the scheme and port).

Running JIRA Standalone as a Service

For long-term use, JIRA should be configured to automatically restart when the operating system restarts. For Windows servers, this means configuring JIRA to run as a **Windows service.**

If you are running JIRA Standalone on Linux and want to start it automatically, please refer to Starting JIRA Standalone automatically on Linux instead.

Running JIRA as a Windows service has other advantages. When started manually a console window opens, and there is a risk of someone accidentally shutting down JIRA by closing this. Also, the JIRA logs are properly managed by the Windows service (found in `logs\stdout*.log` in your JIRA Home Directory, and rotated daily).

There are two ways to install JIRA as a service: via the installer, and manually.

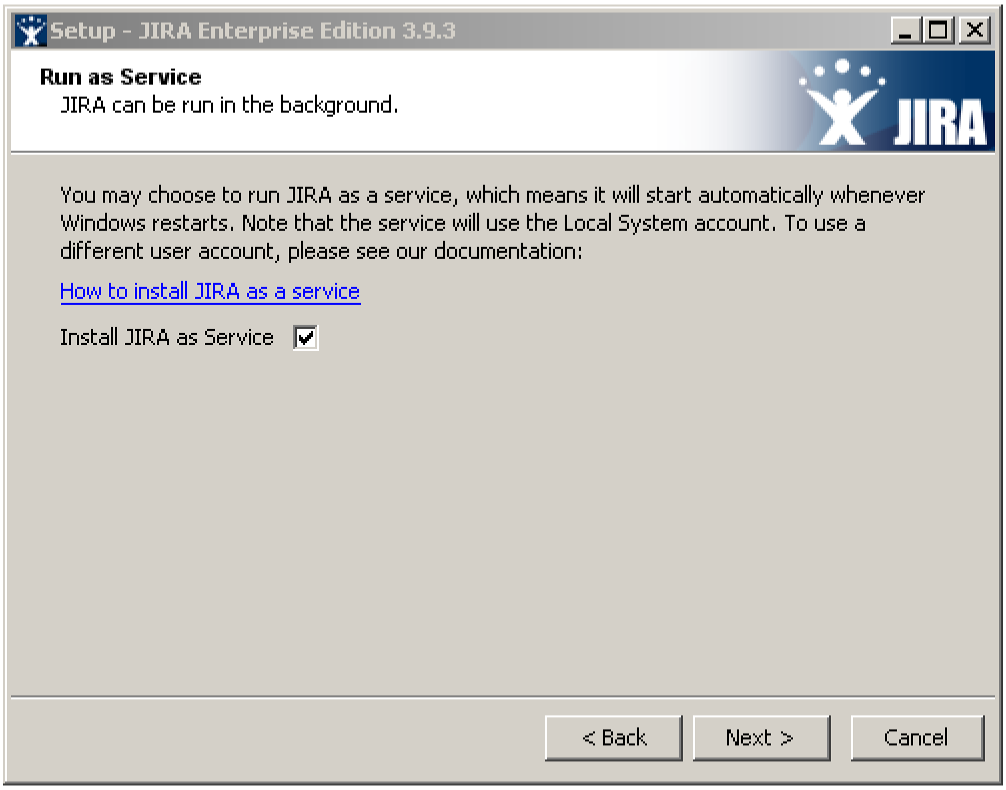
On this page:

- Installing JIRA as a Service
    - Installing as a Service with the Installer
    - Installing as a Service manually
- Removing the JIRA service
- Changing the Windows user that the JIRA service uses
- Specifying the startup order of multiple services
- Locating the name of a service
- Troubleshooting

Installing JIRA as a Service

Installing as a Service with the Installer

The easiest way to get JIRA installed as a Windows service is by clicking the '**Install JIRA as Service**' checkbox when running the Windows installer:



You will need full Administrator rights on your Windows operating system for this installation process to complete successfully.

Installing as a Service manually

If you didn't use the Windows installer, or for some other reason have JIRA Standalone and now want it to run as a service, follow these instructions. They apply only to JIRA running in the Apache Tomcat application server (e.g. the JIRA "Standalone" distribution).

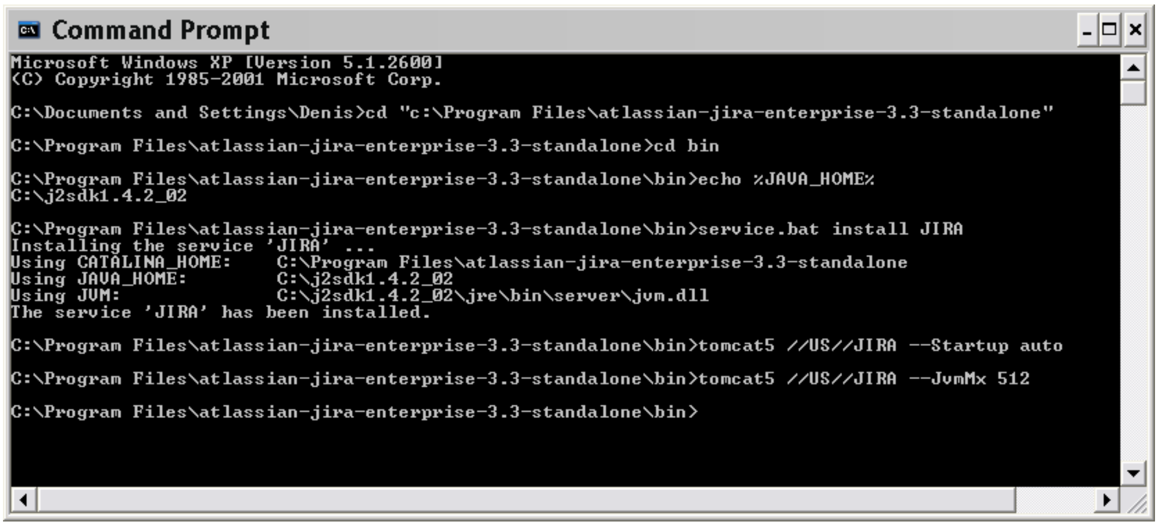
If you are running 64-bit Windows, please note that Apache Tomcat cannot run as a Windows service if you are using a 64-bit JDK/JRE (see JRA-12965). Please ensure that you are using a 32 bit JDK (if you used the Windows Installer, a 32 bit JDK has already been installed for you).

On Windows Vista or any other operating system with User Account Control (UAC), you must either disable UAC or right-click on cmd.exe and select "Run as administrator" in order to run the following script. If UAC is enabled, being logged on with an Administrator account is not sufficient.

1. Open a DOS prompt,
2. 'cd' to the JIRA Standalone directory, and then the *bin* subdirectory
3. If a directory in the path has spaces (e.g. 'C:\Program Files\..'), please convert it to its eight-character equivalent (e.g. c:\Progra~1\..).
4. Ensure the **JAVA_HOME** variable is set to the JDKbase directory, with `echo %JAVA_HOME%`.
5. Run the following command:

```
service.bat install JIRA
```

Here is a screenshot of the process:



JIRA should now be installed as a service.

6. In addition, to have the JIRA service start automatically when the server starts, run:

```
tomcat6 //US//JIRA --Startup auto
```

The JIRA service will automatically start up the next time the server reboots. The JIRA service can be manually started with the command **'net start JIRA'** and stopped with **'net stop JIRA'.**

> To see what parameters the JIRA service is starting with, Go to Start -> Run, and run "regedt32.exe". There should be an entry at HKEY_LOCAL_MACHINE -> SOFTWARE -> Apache Software Foundation -> Procrun 2.0 -> JIRA.

7. Additional JIRA Standalone setup options (optional):
   - To increase the maximum memory JIRA can use (the default will already be 256MB), run:

     ```
     tomcat6 //US//service_name --JvmMx 512
     ```

     where **service_name** is the name of your JIRA service, e.g. JIRA123487934298.
   - To *add* JVM parameter, for example pass a parameter to enable JIRA's Jelly support, run:

     ```
     tomcat6 //US//service_name ++JvmOptions="-Djira.jelly.on=true"
     ```

     where **service_name** is the name of your JIRA service, e.g. JIRA123487934298.
   - If you are running JIRA and Confluence in the same JVM, increase the MaxPermSize size to 128 MB:

     ```
     tomcat6 //US//service_name ++JvmOptions="-XX:MaxPermSize=128m"
     ```

     where **service_name** is the name of your JIRA service, e.g. JIRA123487934298.
   - Occasionally, it may be useful to view JIRA's Garbage Collection information. This is especially true when investigating memory issues.To turn on the Verbose GC (garbage collection) logging, execute the following command in the command prompt:

     ```
     tomcat6 //US//service_name ++JvmOptions="-Xloggc:path\to\logs\atlassian-gc.log"
     ```

     where **service_name** is the name of your JIRA service, e.g. JIRA123487934298.
     The path (denoted by **\path\to)** refers to the directory in which JIRA is currently installed. For example:

     ```
     tomcat6 //US//service_name ++JvmOptions="-Xloggc:c:\jira\logs\atlassian-gc.log"
     ```

     where **service_name** is the name of your JIRA service, e.g. JIRA123487934298.

See the Tomcat documentation for further service options.

Removing the JIRA service

If JIRA was installed through the Windows installer, go to the '**Control Panel**' in Windows, click '**Add or Remove Programs**' and remove JIRA. This will remove the service too.

If you installed the service manually (see above) it can be uninstalled with:

```
service.bat remove JIRA
```

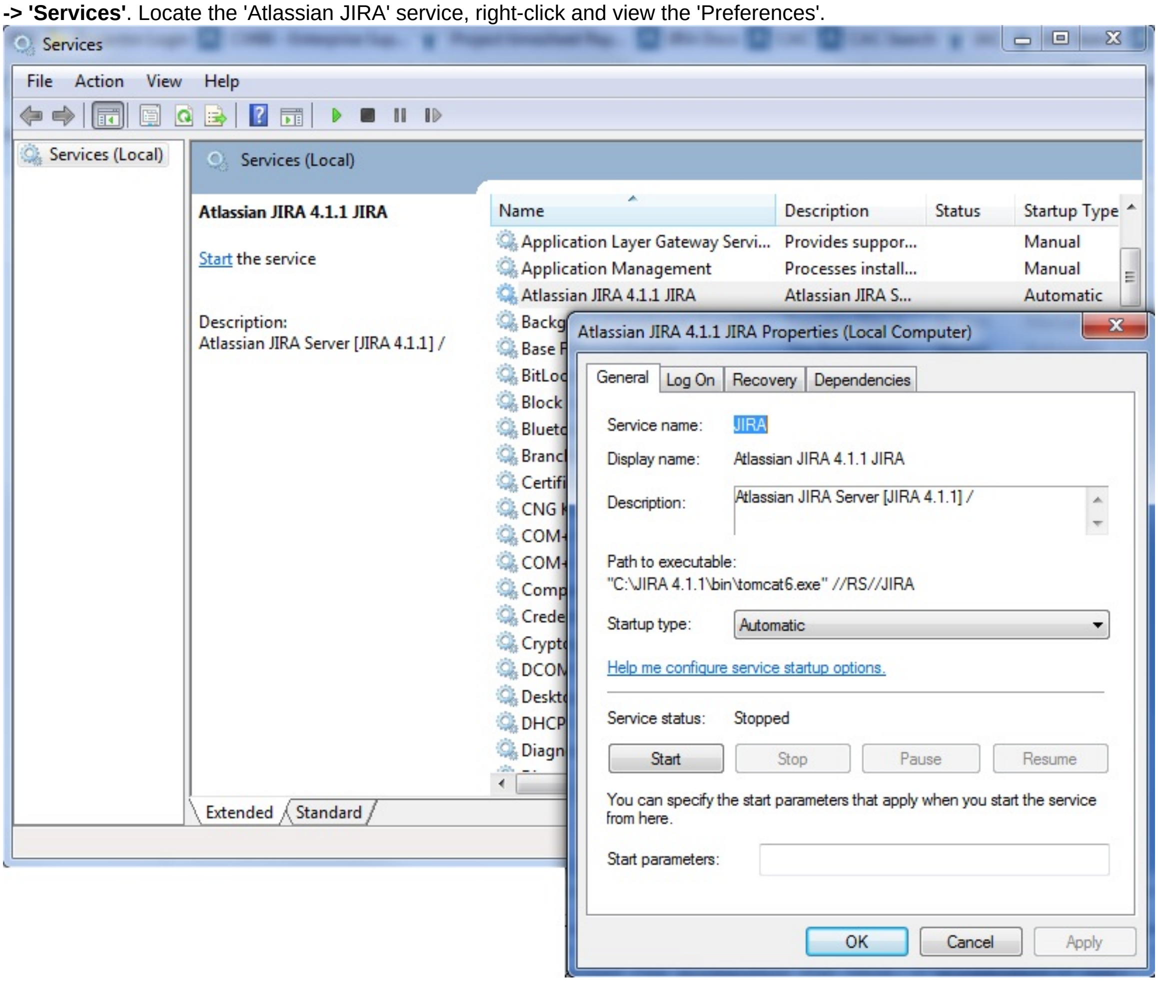
Alternatively, if the above does not work, use `tomcat6 //DS//JIRA`.

Changing the Windows user that the JIRA service uses

If you are using mapped network drives for JIRA's backup directory, attachments directory, index directoy or the %CATALINA_HOME%* directory, you need to ensure that JIRA can write to these drives. That is, these directories all need to be writeable by the user which the JIRA service is running as. This may mean that you need to change the Windows user that the JIRA server uses.

Also note that you must also specify these network drives by UNC and not letter mappings, e.g. **\\backupserver\jira** not **z:\jira**

To change the Windows user that the JIRA service uses, navigate to the service in Windows, i.e. **'Control Panel' -> 'Administrative Tools' -> 'Services'**. Locate the 'Atlassian JIRA' service, right-click and view the 'Preferences'.



Go to the '**Log On**' tab and change the user as desired.

Specifying the startup order of multiple services

If you have services that depend on each other, it is important that they are started in the correct order. Common examples include:

- If you are running both JIRA and Crowd, it is important to start Crowd first, so that Crowd is running before people try to login to

JIRA.
- If the database JIRA connects to is hosted on the same server as JIRA, and is started via a Windows service, the JIRA service will only start successfully if the database service has already started first.

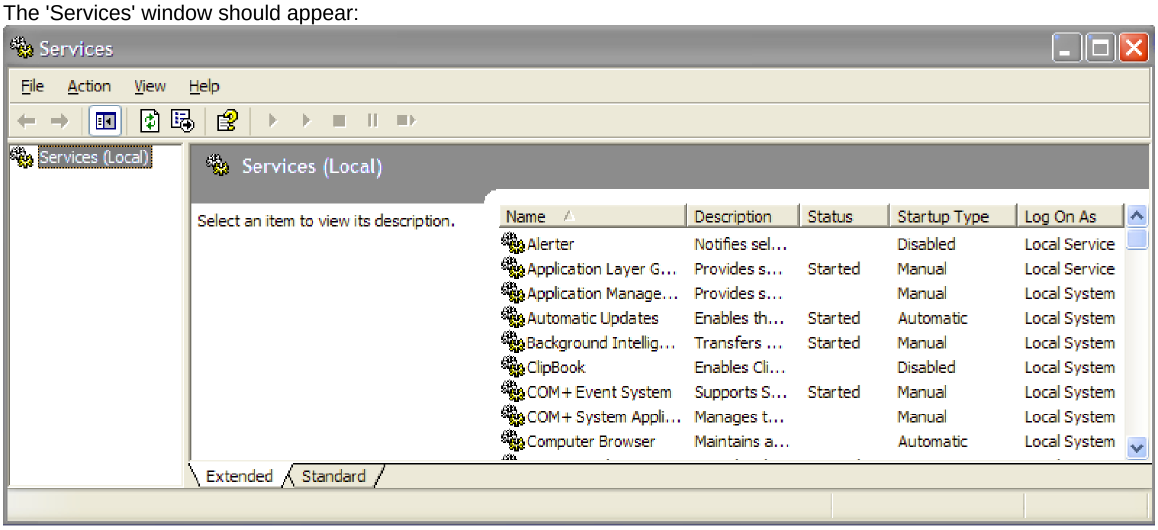
To set up start up dependency rules, open a command prompt and enter the following command:
`C:\Documents and Settings\Developer>sc config [JIRA service] depend=[database service]`
Please note the space character after `'depend='`.

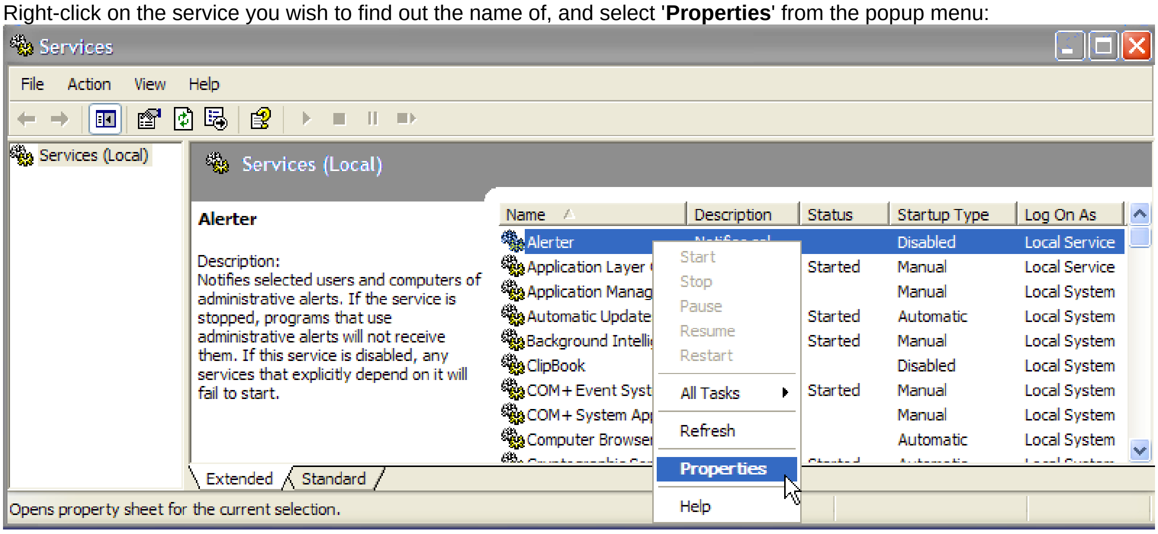
- **[JIRA service]** is the name of the JIRA service you are running, e.g. JIRA051007111904.
- **[database service]** is the name of the database service you are running, e.g. MSSQLSERVER.

If you wish, you can also set up dependency rules by editing the system registry. Please see http://support.microsoft.com/kb/193888 for details on how to do this.

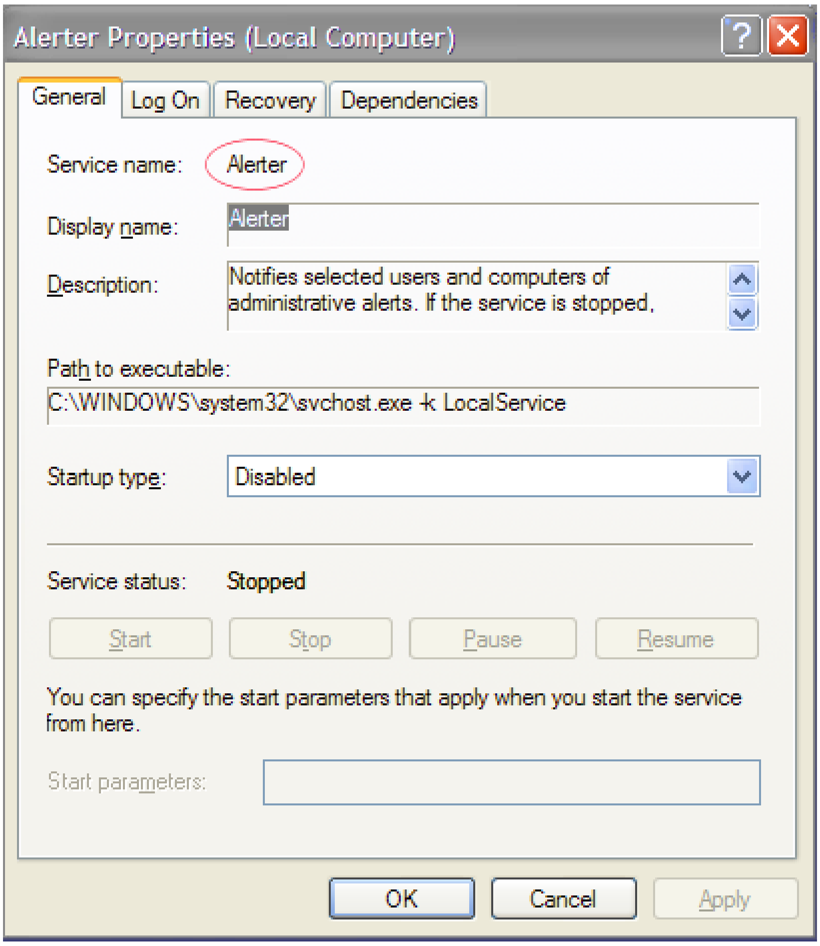
Locating the name of a service

If you do not know the exact name of your JIRA service or your database service, you can find out what they are by following the steps below:

1. Navigate to **'Control Panel' -> 'Administrative Tools' -> 'Services'**.
2. The 'Services' window should appear:


3. Right-click on the service you wish to find out the name of, and select '**Properties**' from the popup menu:


4. The 'Service name' should appear in the 'General' tab:



Troubleshooting

- Problems may occur when trying to setup JIRA Standalone to run as a Windows service with JDK 1.6. The problem is due to failure to locate "MSVCR71.DLL", which can be found in `%JAVA_HOME%/bin`. There are two options to resolve this problem:
    - Add %JAVA_HOME/bin to PATH, then restart the JIRA server.
    - Copy MSVCR71.DLL to system path, C:\WINDOWS\SYSTEM32 or C:\WINNT\SYSTEM32
- Take note of the username that the service is running as, and be sure to modify the `/temp` and `/work` directories in your install directory so that this user has read and write permissions.
- You cannot run JIRA as a service on a 64-bit operating system if you require allocating more than 1.5GB of memory, due to 32-bit JDK memory limitations and 64-bit JDK/Tomcat service issues.

Starting JIRA Standalone automatically on Linux

Linux system administration is outside the scope of Atlassian support- this document is for informational purposes only

On Unix/Linux, the best practice is to install, configure and run each service (including JIRA) as a dedicated user with only the permissions they require.

To install, configure and run JIRA automatically on Unix/Linux:

1. Create a `jira` user for instance, using the following command:

```
sudo useradd --create-home -c "JIRA role account" jira
```

2. Create a directory to install JIRA into:

```
sudo mkdir /usr/local/jira
sudo chown jira: /usr/local/jira
```

3. Log in as the `JIRA` user to install JIRA:

```
sudo su - jira
cd /usr/local/jira/
tar zxvf /tmp/atlassian-jira-enterprise-4.0.2-standalone.tar.gz
ln -s atlassian-jira-enterprise-4.0.1-standalone/ current
```

4. Edit current/atlassian-jira/WEB-INF/classes/jira-application.properties, and set jira.home=/usr/local/jira/home
5. Then back as root, create the file `/etc/init.d/jira` (code shown below), which will be responsible for starting up JIRA after a reboot (or when manually invoked).

```
#!/bin/sh -e
# JIRA startup script
#chkconfig: 2345 80 05
#description: JIRA

# Define some variables
# Name of app ( JIRA, Confluence, etc )
APP=jira
# Name of the user to run as
USER=jira
# Location of application's bin directory
BASE=/usr/local/jira/current
# Location of Java JDK
export JAVA_HOME=/usr/lib/jvm/java-6-sun

case "$1" in
  # Start command
  start)
    echo "Starting $APP"
    /bin/su -m $USER -c "cd $BASE/logs && $BASE/bin/startup.sh &> /dev/null"
    ;;
  # Stop command
  stop)
    echo "Stopping $APP"
    /bin/su -m $USER -c "$BASE/bin/shutdown.sh &> /dev/null"
    echo "$APP stopped successfully"
    ;;
   # Restart command
   restart)
        $0 stop
        sleep 5
        $0 start
        ;;
  *)
    echo "Usage: /etc/init.d/$APP {start|restart|stop}"
    exit 1
    ;;
esac

exit 0
```

1. Make the init script executable:

```
chmod \+x /etc/init.d/jira
```

1. Place symlinks in the run-level directories to start and stop this script automatically.
   a. For Debian-based systems:

   ```
   update-rc.d jira defaults
   ```

   The following commands will be executed to place symlinks in the run-level directories:

```
Adding system startup for /etc/init.d/jira ...
   /etc/rc0.d/K20jira -> ../init.d/jira
   /etc/rc1.d/K20jira -> ../init.d/jira
   /etc/rc6.d/K20jira -> ../init.d/jira
   /etc/rc2.d/S20jira -> ../init.d/jira
   /etc/rc3.d/S20jira -> ../init.d/jira
   /etc/rc4.d/S20jira -> ../init.d/jira
   /etc/rc5.d/S20jira -> ../init.d/jira
```

b. For RedHat-based systems:

the init.d script contains chkconfig settings

```
sudo /sbin/chkconfig --add jira
```

2. Ensure the script is executed in the correct order, in particular after the database startup script.

Thank you for this information
Thank you to Matthew Block and Pete Toscano for the original comments that we based this information on.

Using the JIRA Configuration Tool

- About the JIRA Configuration Tool
- Starting the Configuration Tool
- Configuring the JIRA Home Directory
- Configuring the Database Connection
  - Connection Details
  - Connection Pool
- Saving your settings

About the JIRA Configuration Tool

JIRA Configuration Tool is a GUI application that you can run before you start the JIRA Web Server, in order to configure the JIRA Home Directory and the Database Connection.

The application can be run again at a later date, but you must restart JIRA in order to pick up the new settings.

The Configuration Tool is available in JIRA Standalone edition only. People using the WAR edition must still manually change the configuration files.

Starting the Configuration Tool

The JIRA Configuration Tool is a GUI tool only available if you are using JIRA Standalone distribution. If you are running a WAR-EAR distribution of JIRA, or have a text-only connection to the JIRA server, you will need to configure the files manually.

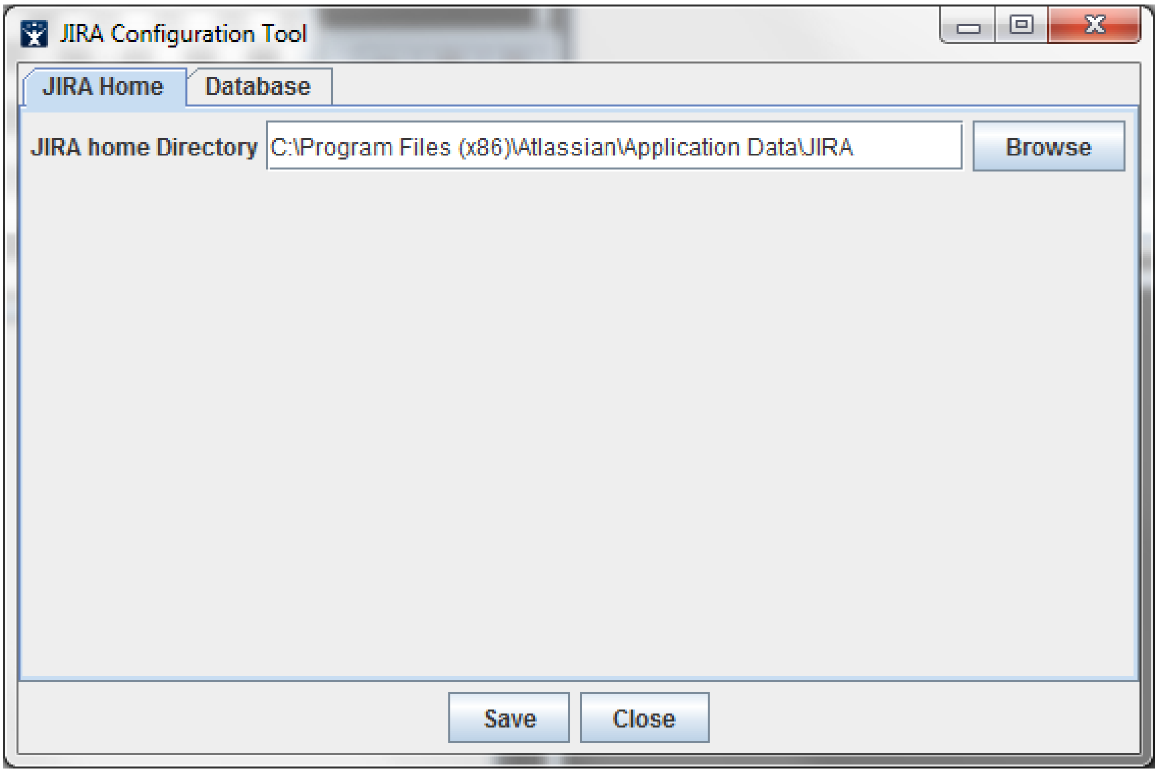
The JIRA Configuration Tool requires that Java be installed and configured on your operating system. We recommend using a Java platform supported by JIRA — refer to JIRA Requirements for details.

- **For Windows:** Run `config.bat` in the `bin` subdirectory of the JIRA Installation Directory.
- **For other supported operating systems:** Run `config.sh` in the `bin` subdirectory of the JIRA Installation Directory.

The Configuration Tool will display your current configuration settings if any are already set.

Configuring the JIRA Home Directory

Under the '**JIRA Home**' tab, you can set the folder that JIRA uses to store various data files. Type the full file path into the text field, or click the '**Browse**' button to browse your disk drive(s).

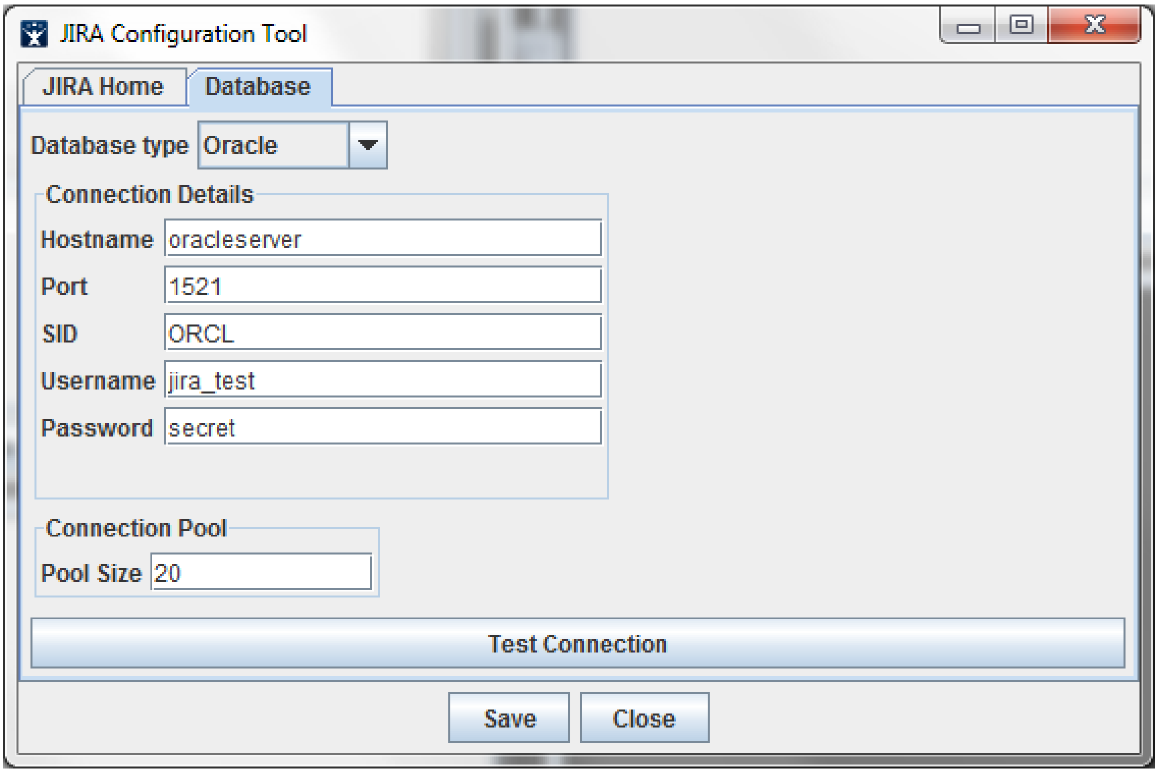


For more details please see Setting your JIRA Home Directory.

Configuring the Database Connection

Click the '**Database**' tab. From the '**Database type**' drop-down you can choose your database type.

> For details on specifying the settings for different types of databases, please see Connecting JIRA to a Database.



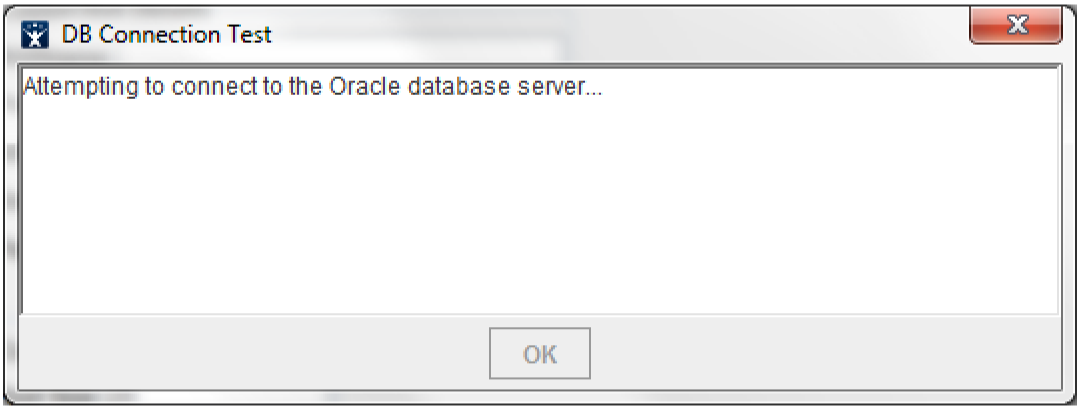
Connection Details

Different databases take slightly different settings in the '**Connection Details**' section. For some of these fields, you may be able to leave a blank value indicating to use the 'default value'.

These are the common settings:

- **Hostname** — The name or IP address of the server that the DB is installed on.
- **Port** — The TCP/IP port that the DB server is listening on. Often you can leave this blank to use the default port number.
- **Username** — The user which JIRA will use to connect to the DB server.
- **Password** — The password which JIRA will use to authenticate with the DB server.

After typing in your settings, use the '**Test Connection**' button to test the connection settings. The tool will attempt to connect to the database, and give a message with the results.



Connection Pool

JIRA keeps a pool of database connections open to the database server. You can set the maximum size of this pool in the '**Pool Size**' text field.

Saving your settings

Click '**Save**' to save your settings when you are done.

You will need to restart JIRA in order for your new settings to take effect.

Starting JIRA Standalone automatically on FreeBSD

Unix system administration is outside the scope of Atlassian support- this document is for informational purposes only

On Unix the best practice is to install, configure and run each service (including JIRA) as a dedicated user with only the permissions they require.

To run JIRA automatically on FreeBSD:

1. As root, create the file `/usr/local/etc/rc.d/jira.sh` (code shown below), which will be responsible for starting up JIRA after a reboot (or when manually invoked). If you are not using postgresql for your database, change the REQUIRE line to whatever is in the PROVIDE line in your database init script.

```
#!/bin/sh
#
# Startup script for JIRA on FreeBSD
#
# This goes in /usr/local/etc/rc.d and gets run at boot-time.

# PROVIDE: jira
# REQUIRE: postgresql
# KEYWORD: shutdown

#
# Add the following lines to /etc/rc.conf to enable jira:
#
#jira_enable="YES"
#
jira_enable="${jira_enable-NO}"

. /etc/rc.subr

name="jira"
rcvar=`set_rcvar`
start_cmd="${name}_start"
stop_cmd="${name}_stop"

jira_start()
{
    echo -n " Starting JIRA"
    su - atlassian -c '/home/atlassian/jira/bin/startup.sh'
}

jira_stop()
{
    echo -n " Stopping JIRA"
    su - atlassian -c '/home/atlassian/jira/bin/shutdown.sh'
}

load_rc_config $name
run_rc_command "$1"
```

2. Make the init script executable:

```
chmod \+x /usr/local/etc/rc.d/jira.sh
```

3. Make the init script readonly:

```
chmod \-w /usr/local/etc/rc.d/jira.sh
```

4. Add the following line to `/etc/rc.conf`

```
jira_enable="YES"
```

More information can be found in this article

Installing JIRA WAR-EAR

Full Size

This Installation Guide applies if you are installing JIRA for the first time. If you are upgrading JIRA, please refer to the Upgrade Guide.

Which 'Distribution' Should You Choose?

JIRA is available in two 'distributions':

Standalone distribution	WAR/EAR distribution
Pre-packaged with Tomcat application server	Deploys into an existing application server
Pre-packaged with HSQLDB database, but can be easily connected to any supported database	Connects to any supported database
Requires virtually no setup	Requires manual configuration
Recommended for all users	Suitable only for system administrators

The **Standalone distribution is recommended,** even for organisations with an existing application server environment. Please note however, that the HSQLDB database pre-packaged with the Standalone distribution is suitable for evaluation purposes only.

Installing JIRA WAR/EAR

The distribution ZIP file contains an Ant build script to create a deployable EAR or WAR for your particular application server (and any necessary library directories).

The basic set of steps to install JIRA WAR/EAR is as follows:

1. Download and unzip JIRA (but not with XP's unzipper nor the default tar utility on Solaris). Ensure that you download the **WAR/EAR version,** not the Standalone version that is recommended on the Downloads page.

   > **Avoid the Windows XP built-in unzip tool!** The built-in unzip tool in Windows XP is broken — it silently fails to extract files with long names (see JRA-2153). Other users have also reported problems using WinRAR. Please use another tool like WinZIP to unpack JIRA.

   > **Avoid the Solaris default tar utility!** On Solaris, please use **GNU tar** to unpack JIRA in order to handle long filenames. Do not use the Solaris default tar utility.

   A new directory containing JIRA will be created, hereafter referred to as `$JIRA_INSTALL`.

   > A dedicated user should be created to run JIRA, as JIRA runs as the user it is invoked under and therefore can potentially be abused. Here is an example of how to create a dedicated user to run JIRA in Linux/Solaris:
   >
   > ```
   > $ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell /bin/bash
   > jira
   > ```
   >
   > To maximise security, ensure that this user can only write to the JIRA directories (not to the entire file system).

2. Follow the instructions in the **readme.txt** file, located in the root directory of the unpacked JIRA distribution. This refers to the server-specific installation guides:
   - Tomcat 6.0.x
   - Tomcat 5.5.x
3. Set your JIRA home directory as described in Setting your JIRA Home Directory.
4. The following system property must be set in order for the JIRA mail handler to work correctly with emails from RFC 2231-compliant mail clients:

   Refer to Setting Properties and Options on Startup for instructions.
5. Access JIRA using your web browser and run through the brief Setup Wizard.
6. For production use, please check that your application server is allocated sufficient memory. Java applications claim up to only 64Mb by default, and this usually isn't enough for JIRA. See Increasing JIRA Memory for more information.

Notes

- Deploying multiple Atlassian applications in a single Tomcat container is **not supported.** We do not test this configuration and upgrading any of the applications (even for point releases) is likely to break it. There are also a number of known issues with this configuration (see this FAQ for more information).

  We also strongly recommend that you do not deploy multiple Atlassian applications in a single Tomcat container for a number of practical reasons. Firstly, you will need to shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in the Tomcat container will be inaccessible.

Next Steps

- Read the JIRA WAR-EAR Configuration Overview. This contains important configuration information, regardless of your application server.
- Refer to the relevant guide for your application server below:
  - Tomcat 6.0.x
  - Tomcat 5.5.x

JIRA WAR-EAR Configuration Overview

While the individual server install guides provide specific instructions, it is useful to have an overall conceptual overview of what the configuration process involves.

Webapp layout

After downloading and unpackaging the JIRA webapp, one is presented with a directory containing:

```
appendcp.bat
build.bat
build.sh
build.xml
edit-webapp
etc
licenses
readme.txt
src
tools
updater
webapp
```

The build.xml file is an Ant file, which when invoked with the `build.(sh|bat)` script, will construct a deployable webapp. build.xml does this by copying the contents of the `webapp/` directory, and *overwriting* it with the contents of `edit-webapp/`. Thus, **never edit files in the webapp/ directory!** If a file needs editing, first copy it from `webapp/path/to/file` to `edit-webapp/path/to/file`, and edit it there.

Database configuration

The biggest part of configuring JIRA is connecting it up to a database. In J2EE apps like JIRA, the server (Tomcat, Orion etc) is responsible for setting up a Database connection factory, and then makes this available to the webapp (JIRA) via a lookup API called JNDI. So all the hard work, setting up JDBC URLs, usernames and passwords, is done in the app server. All JIRA needs is the JNDI address where it can find the database connection, in the form of a **java.sql.DataSource** object.

Beyond just getting a database connection, JIRA also needs to know what *type* of database it is dealing with, so it can issue appropriate SQL commands.

Transaction Manager configuration

J2EE apps also rely on a Transaction Manager to coordinate updates across multiple databases. While JIRA does not currently use this facility, JIRA's underlying library (OfBiz) still requires a transaction manager object. As with database connections, this is provided by the application server, as a **javax.transaction.UserTransaction** object looked up via JNDI.

User management configuration

JIRA stores all user profiles in a database table. Occasionally, integration with external user management systems like LDAP is required. This requires some configuration of `osuser.xml`. See The LDAP Integration guide for more information.

So to recap, JIRA needs to know at least three things:

- The JNDI address of its database connection (a **java.sql.DataSource** object).
- What type of database it is dealing with.
- The JNDI address of a Transaction Manager (a **javax.transaction.UserTransaction** object).

This is all done in the `entityengine.xml` file, as described in the database configuration guide. You'll find a copy of `entityengine.xml` is `edit-webapp/WEB-INF/classes`, ready to be edited.

There are a few app servers which, for various reasons, we have been unable to use the normal JNDI lookup procedure to obtain a datasource/transaction manager. See the individual app server guides for more details on how these are configured - it generally means that more configuration details end up in `entityengine.xml`.

Configuring the Entity Engine for JIRA

The Entity Engine from the OFBiz project is what JIRA uses to persist data to a database. You can find out more about why we chose the EE at the bottom of this page. See the configuration overview for a conceptual overview of what is being done here.

On this page:

- Configuring the Entity Engine for JIRA
    - Transaction Factory
- Altering the Entity Model
- Why we chose the Entity Engine

Configuring the Entity Engine for JIRA

The configuration of the Entity Engine is done through an XML file called `entityengine.xml`. This file is used to define parameters for persistence servers such as JDBC datasource parameters.

For JIRA, this file is located in the distribution at `edit-webapp/WEB-INF/classes/entityengine.xml`.

As outlined in the overview, the settings which generally need to be configured are:

- **Transaction Factory** — see below
- **field type** — edit the `field-type-name` attribute of the `<datasource>` tag.
- **datasource location:**
    - edit the `jndi-name` attribute of the `<jndi-jdbc>` tag relevant to your database.
    - For certain schema-aware databases **(Postgres, DB2),** add a **schema-name** attribute specifying the schema the database uses. See note in the `entityengine.xml` file.
    - For databases with table/column name length limits (e.g. **DB2** on certain platforms), you may need to set a **constraint-name-clip-length** parameter. See the note in the `entityengine.xml` file.

> Ensure that your `entityengine.xml` XML file is **well-formed** when making changes. Some application server configurations may "swallow" the error messages you should get in your log file if `entityengine.xml` is not well-formed and instead, report spurious error messages.

Transaction Factory

By default the Entity Engine tries to obtain a JTA transaction factory from the application server using JNDI. The code sample(s) below show the different values for Apache Tomcat application servers.

Tomcat 5.5 (see also Installing JIRA on Tomcat 5.5):

```
<transaction-factory class="org.ofbiz.core.entity.transaction.JNDIFactory">
  <user-transaction-jndi jndi-server-name="default"
    jndi-name="java:comp/env/UserTransaction"/>
  <transaction-manager-jndi jndi-server-name="default"
    jndi-name="java:comp/env/UserTransaction"/>
</transaction-factory>
```

Altering the Entity Model

The Entity Model describes the table and column layout that JIRA uses in a database. It can be completely altered without changing any of the internal workings of JIRA.

The model provided should work with almost any database (care has been taken to ensure the column and table names are SQL compliant).

The entity model is configured through an XML file called `entitymodel.xml` (located in the distribution at `webapp/WEB-INF/classes/entitydefs/entitymodel.xml`). To edit this file, copy it to `edit-webapp/WEB-INF/classes/entitydefs/entitymodel.xml` and make changes there. When the WAR/EAR is built using build.(sh|bat), the 'edit-webapp' version of the file will be used.

The format of the file should be fairly self explanatory - basically JIRA always refers to the `entity-name` and `field-name` attributes within the code. The `type` attribute of a `<field>` tag should always match the `type` attribute of a `<field-type-def>` tag in your `fieldtype-*.xml` files.

To change where entities and fields are persisted in your database, simply add (or edit) the attribute `table-name` (for entities) or `col-name` (for fields).

Why we chose the Entity Engine

We chose the EE over CMPorBMPentity beans because:

- it is more portable between application servers
- table schemas are automatically created and updated
- using the field type definitions, we can add support for new databases very quickly
- it is faster than most CMP implementations and has some nice caching features

This document deals with configuring the entity engine for JIRA (but should be applicable to most applications). For more details on the entity engine itself and it's inner workings, see:

- OFBiz Entity Engine Guide describes the theory behind the entity engine, its architecture and usage patterns
- OFBiz Entity Engine configuration guide describes all of the entity engine configuration options, whereas this document just describes configuring the entity engine for JIRA

Switching Application Servers

To move JIRA from one application server to another, for example from WebSphere to Tomcat, use one of the following methods:

> **Note**
> Regardless of which method you use, backup your data first and make sure you test JIRA on the new server before deploying it in production.

Method 1. Export and import the database

Follow the Upgrading JIRA instructions, installing the new version of JIRA on your new application server.

Method 2. Use your existing database

If you are using the same major version (e.g. 4.0.x) of JIRA on the old and new application server, you do not have to export your data. You can use your existing database with the new application server.

However, you cannot simply copy the WAR file or expanded WAR directory from an old JIRA EAR/WAR version in the old application server to the new application server. **This will not work.**

Follow these instructions:

1. Install JIRA on your new application server (see Installing JIRA WAR-EAR). As part of these instructions:
    - When you configure the JDBC datasource in your new server, use the settings for your existing database.
    - Check that the JNDI location of the `UserTransaction` as declared in the `entityengine.xml` file is correct for your server.
2. From System Info, check the modified files to see what customisations, if any, exist from the original installation. Consider these changes in your new server.
3. Make sure you shutdown the old server before you startup the new one.
4. If you are running the new application server on a different machine to the old one, carry out the following actions as soon as you start the new server:
    - Re-index your data.
    - Make sure that the attachment path is valid for the new server.

Installing JIRA on Tomcat 6.0

Full Size

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This section describes how to install JIRA on Tomcat 6.0, a popular open-source server from the Apache Jakarta project.

Tomcat can be downloaded from the Apache site.

On this page:

- Before You Begin
- 1. Unpack JIRA
- 2. Configure JIRA
    - 2.1 Database Connection
    - 2.2 JIRA Home
- 3. Build JIRA
- 4. Update Tomcat Libraries
- 5. Configure Tomcat
- 6. Modify Tomcat server.xml
- 7. Fix Tomcat memory settings
- 8. Start Tomcat
- Troubleshooting
- User-contributed notes

Before You Begin

Please read the following important notes before you begin installing JIRA on Tomcat 6.0:

- All versions of Tomcat effectively leak memory by caching JSPs, which can result in OutOfMemoryErrors if large pages (eg. RSS or Excel) are requested. There is a flag you should set to disable this caching.
- If you are using version 6.0.13 or higher of Tomcat 6, with a MySQL database, you must set up Tomcat to survive connection closures. These versions of Tomcat have been noted to exhibit problems maintaining connections to MySQL databases. Please read this document for details on the changes required.

- Tomcat 6.0.24 contains a critical bug. Please use 6.0.20 instead.
- Deploying multiple Atlassian applications in a single Tomcat container is **not supported.** We do not test this configuration and upgrading any of the applications (even for point releases) is likely to break it. There are also a number of known issues with this configuration (see this FAQ for more information).

  We also strongly recommend that you do not deploy multiple Atlassian applications in a single Tomcat container for a number of practical reasons. Firstly, you will need to shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in the Tomcat container will be inaccessible.
- The JIRA 'Standalone' download is JIRA preconfigured with a copy of Tomcat 6.0.20. If you have JIRA Standalone, you don't need to follow the steps below.

1. Unpack JIRA

Download and unzip JIRA (but not with XP's unzipper nor the default tar utility on Solaris). Ensure that you download the **WAR/EAR version,** not the Standalone version that is recommended on the Downloads page.

> **Avoid the Windows XP built-in unzip tool!** The built-in unzip tool in Windows XP is broken — it silently fails to extract files with long names (see JRA-2153). Other users have also reported problems using WinRAR. Please use another tool like WinZIP to unpack JIRA.

> **Avoid the Solaris default tar utility!** On Solaris, please use **GNU tar** to unpack JIRA in order to handle long filenames. Do not use the Solaris default tar utility.

A new directory containing JIRA will be created, hereafter referred to as `$JIRA_INSTALL`.

> A dedicated user should be created to run JIRA, as JIRA runs as the user it is invoked under and therefore can potentially be abused. Here is an example of how to create a dedicated user to run JIRA in Linux/Solaris:
>
> ```
> $ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell /bin/bash jira
> ```
>
> To maximise security, ensure that this user can only write to the JIRA directories (not to the entire file system).

2. Configure JIRA

2.1 Database Connection

JIRA needs to be told what type of database you'll be using. The database is specified in `$JIRA_INSTALL/edit-webapp/WEB-INF/classes/entityengine.xml` . Locate the **<datasource>** tag near the bottom, and change the **field-type-name** attribute value. See the relevant setup guide for your database to find out what value should be used for **field-type-name**:

```
<datasource name="defaultDS"
          field-type-name="hsql"
          schema-name="PUBLIC"
          helper-class="org.ofbiz.core.entity.GenericHelperDAO"
          check-on-start="true"
          use-foreign-keys="false"
          use-foreign-key-indices="false"
          check-fks-on-start="false"
          check-fk-indices-on-start="false"
          add-missing-on-start="true">
          <jndi-jdbc jndi-server-name="default"
          jndi-name="java:comp/env/jdbc/JiraDS" />
        </datasource>
```

For PostgreSQL 7.3+, you also need to set a **schema-name** attribute. Refer to Connecting JIRA to PostgreSQL for details.

Also in `entityengine.xml` , ensure the `<transaction-factory>...</transaction-factory>` tag contains:

```
<transaction-factory class="org.ofbiz.core.entity.transaction.JNDIFactory">
        <user-transaction-jndi jndi-server-name="default"
jndi-name="java:comp/env/UserTransaction"/>
      <transaction-manager-jndi jndi-server-name="default"
jndi-name="java:comp/env/UserTransaction"/>
    </transaction-factory>
```

More details on JIRA's database access layer are available on the EntityEngine configuration page.

2.2 JIRA Home

To specify the location of your JIRA Home Directory (note that you need to do this *before* you build JIRA):

- Edit the `jira-application.properties` file (see the JIRA Installation Directory page to find where this file is located), add a 'jira.home' property and set it to your desired location for the JIRA home directory. Please use forward-slashes ("/"), not back-slashes ("\").

You can specify any location on a disk for your JIRA home directory. Please be sure to specify an absolute path.

Please note that you cannot use the same JIRA home directory for multiple instances of JIRA. We recommend that you do not specify your JIRA home directory to be inside your installation directory, to prevent information from being accidentally lost during major operations (e.g. backing up and restoring instances).

3. Build JIRA

Now build JIRA by typing **build** (Windows) or **./build.sh** (Unix) on the command line in the $JIRA_INSTALL directory. This will produce the deployable WAR file in the **$JIRA_INSTALL/dist-tomcat/tomcat-6** directory.

4. Update Tomcat Libraries

Tomcat does not come with some libraries required to run JIRA. To fix this, download

http://www.atlassian.com/software/jira/downloads/binary/jira-jars-tomcat-distribution-4.3-rc1-tomcat-6x.zip

and copy the contained jars to Tomcat's `lib/` directory. (Be sure to remove existing versions of these JAR before copying the new ones.)

- In particular, to prevent exceptions related to logging, please ensure that **commons-logging-1.0.4.jar** and **log4j-1.2.15.jar** are present in Tomcat's `/lib/` directory. Also ensure that these files are not present in Tomcat's `webapps/jira/WEB-INF/lib` directory.

Additionally, if you are running Sun's distribution of Tomcat, download tomcat-dbcp.jar and copy it to the `tomcat6/lib` directory.

5. Configure Tomcat

A JIRA 'context' now needs to be set up in Tomcat. To do this:

1. Make a `Catalina/localhost/` directory in Tomcat's `conf/` directory.
2. Copy **dist-tomcat/tomcat-6/jira.xml** from the built JIRA distribution to your Tomcat's **conf/Catalina/localhost/** directory.
3. Customise the copied **jira.xml** as follows:

```
<Context path="/jira" docBase="path/to/atlassian-jira-4.1.war">
  <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            username="sa"
            password=""
            driverClassName="org.hsqldb.jdbcDriver"
            url="jdbc:hsqldb:path/to/database/jiradb/"
            minEvictableIdleTimeMillis="4000"
            timeBetweenEvictionRunsMillis="5000"/>

  <Resource name="UserTransaction" auth="Container" type="javax.transaction.UserTransaction"
    factory="org.objectweb.jotm.UserTransactionFactory" jotm.timeout="60"/>
  <Manager pathname=""/>

</Context>
```

The paths (denoted as **path/to/)** will be correct by default, assuming you want to deploy the .war from the **dist-tomcat/tomcat-6** directory.

> **Note**
> If you are *not* using hsqldb, make sure you comment out the `minEvictableIdleTimeMillis` and `timeBetweenEvictionRunsMillis` params, or JIRA will run slower than normal.

If you are installing in Windows, make sure that the paths you specify for the location of the WAR file and database are full paths with drive letters (e.g. c:\yourdb\tomcatdb). **N.B.** the last part of the path is the name of the database and is not a directory.The above example assumes you are using hsql (an in-memory database - a good choice for evaluation purposes). Here is an example using MySQL:

```
<Context path="/jira" docBase="path/to/atlassian-jira-4.0.war">
  <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
    username="jirauser"
    password="mypassword"
    driverClassName="com.mysql.jdbc.Driver"
    url="jdbc:mysql://localhost/jiradb?useUnicode=true&amp;characterEncoding=UTF8"
    maxActive="20"
    validationQuery="select 1"/>
  <Resource name="UserTransaction" auth="Container" type="javax.transaction.UserTransaction"
    factory="org.objectweb.jotm.UserTransactionFactory"
    jotm.timeout="60"/>
  <Manager pathname=""/>
</Context>
```

Notice the lack of `minEvictableIdleTimeMillis` and `timeBetweenEvictionRunsMillis` parameters — those should **only** be used with hsql.

4. If using a different database than hsql,
   - copy the JDBC driver jar to `CATALINA_HOME/lib/` (see the database configuration guide); and
   - ensure you have updated the **field-type-name** (see above).

6. Modify Tomcat server.xml

In order for JIRA to correctly display internationalised characters in user and group names you need to modify your Tomcat distributions `conf/server.xml` file. You need to set the property `URIEncoding="UTF-8"` within the connector definition for your http protocol. The connector block should look very much like this:

```
<Connector port="8080" protocol="HTTP/1.1"
        connectionTimeout="20000"
        redirectPort="8443"/>
```

You should modify the block to contain the addition of the `URIEncoding` property:

```
<Connector port="8080" protocol="HTTP/1.1"
        connectionTimeout="20000"
        redirectPort="8443" URIEncoding="UTF-8"/>
```

> **Note**
> Because you must define this property in at the connector level this setting will effect all web-applications you have deployed under the connector. This should not adversely effect the other web-applications but please be aware of this. JIRA will run fine without this property set but you will run into issues if a user or group is created which contains international characters. It is best to set this property to true.

7. Fix Tomcat memory settings

Tomcat has a memory leak where large JSP page requests can fill up memory. JIRA also requires more memory than what is available by default or you may see OutOfMemory errors. Finally there's also a parameter that needs to be set in order for the JIRA mail handler to work correctly with emails from RFC 2231-compliant mail clients. To avoid any of these issues:

For Windows

If you haven´t installed Tomcat as a service, edit Tomcat's `bin/setenv.bat`(create it if it does not exist) and set:

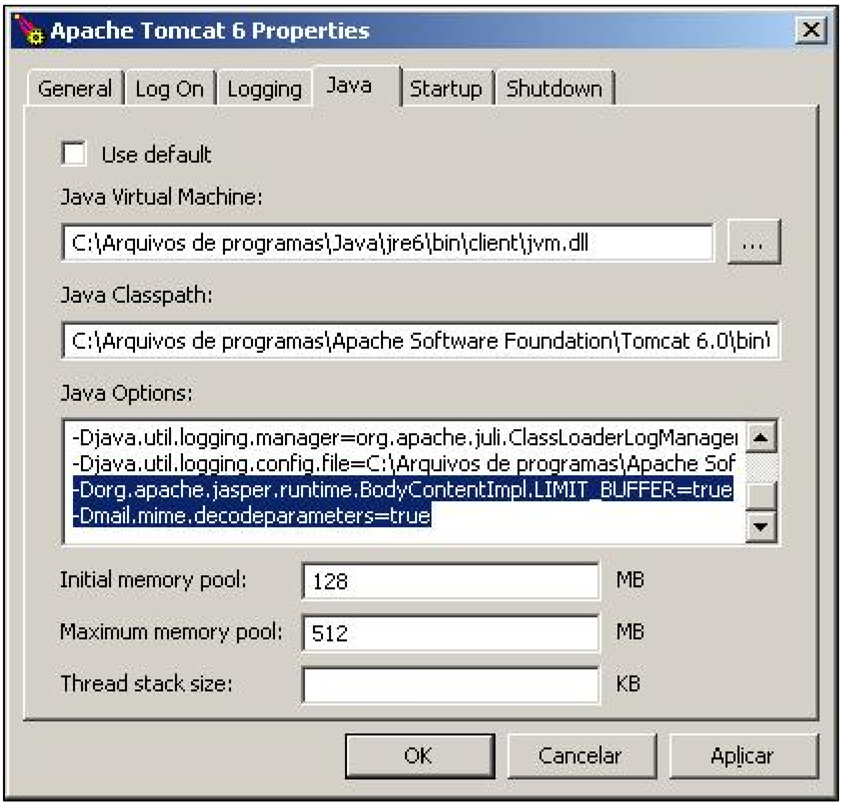
```
set CATALINA_OPTS=%CATALINA_OPTS% -Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true
-Dmail.mime.decodeparameters=true -Xms128m -Xmx512m -XX:MaxPermSize=256m
```

if you running Tomcat 6 as service, right click the tomcat system tray icon and select "Configure..."

Now click on the Java tab and enter the following values

Field	Value
Java Options (append to the existing value)	-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true -Dmail.mime.decodeparameters=true
Initial memory pool	128
Maximum memory pool	512

Your configuration should be similar to the screenshot below:



For Linux

Edit Tomcat's `bin/setenv.sh` (create it if it does not exist) and set:

```
export CATALINA_OPTS="$CATALINA_OPTS -Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true
-Dmail.mime.decodeparameters=true -Xms128m -Xmx512m -XX:MaxPermSize=256m"
```

For other environments, and for more info on memory settings, see the memory settings page.

8. Start Tomcat

JIRA should now be ready to run in Tomcat. To start using JIRA, first start (or restart) the Tomcat server with Tomcat's `bin/startup.(sh|bat)` scripts, and point your browser to http://localhost:8080/jira

You should now see the Setup Wizard, which will take you through the brief setup procedure.

Troubleshooting

It is easy to make a mistake in this process, and even more so if you are trying to connect to a database other than hsqldb. First, check that you have followed the process described above:

- If you are using an external database (not hsqldb), have you set the **field-type-name** attribute in **$JIRA_INSTALL/edit-webapp/WEB-INF/classes/entityengine.xml** ? (step 2)
- Have you previously started JIRA with an incorrect **field-type-name** value? If so, the database schema would have been created incorrectly.
- If you have made changes to **$JIRA_INSTALL/edit-webapp/WEB-INF/classes/entityengine.xml** (step 2) and re-run the build script (step 3), but your changes are not being picked up, delete the Tomcat `webapps/jira` directory, then restart JIRA. It would seem that in some circumstances Tomcat does not correctly re-expand the web application.
- Have you copied the extra Tomcat jars (step 4)? Check if you have `CATALINA_HOME/lib/objectweb-datasource-1.4.3.jar` present.
- If using an external database, did you copy the JDBC driver jar to `CATALINA_HOME/lib/`? (Refer to the Connecting JIRA to a Database section for more information)
- Is the path to the .war file in **conf/Catalina/localhost/jira.xml** correct?
- Have you copied the .war file to Tomcat's **webapps/** directory? This is almost guaranteed to cause problems - please move it elsewhere, and delete any JIRA subdirectories created in **webapps/** from previous Tomcat starts.
- Have you configured JIRA centrally in **conf/server.xml** instead of in **conf/Catalina/localhost/jira.xml** ? This is fine, but then be sure you *don't* also have a **conf/Catalina/localhost/jira.xml** present.
- The log files are usually vital to debugging problems. On Windows, these will appear in the console window that loads when running `startup.bat` , or in one of the log files in the `logs/` directory. On Linux/Unix, logs will appear in a log file in `logs/` , usually `logs/*` (not just logs/catalina.out!). Check the log file for errors after startup.
- If you experience high memory usage / memory leaks (eg OutOfMemoryError), you may wish to set the system property `-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true` in **setenv.sh** / **setenv.bat.** This property is only valid for Tomcat 5.5.15 and later. For more information please see JRA-10145.
- If the connection to your MySQL database is dropping, you will need to set up Tomcat to survive connection closures.

- Please note: The `build.xml` file is an Ant file, which when invoked with the `build.`(sh|bat) script, will construct a deployable webapp. The `build.xml` file does this by copying the contents of the `webapp/` directory, and overwriting it with the contents of `edit-webapp/`. Thus, never edit files in the `webapp/` directory! **If a file needs editing, first copy it from `webapp/path/to/file` to `edit-webapp/path/to/file`, and edit it there**.

If you're stuck, please raise a support request, and attach your logs, configuration files, plus anything else relevant, and we'll get back to you as soon as possible. If you have a general question, please try the jira-user mailing list (which Atlassian staff monitor).

User-contributed notes

Do you have experiences to share with Tomcat 6.0.x and JIRA? We welcome your thoughts. Please see the user-contributed Tomcat 6.0.x notes.

Tomcat 6.0 notes

This page has general notes on installing JIRA on Tomcat 6.0.x. It supplements the official Tomcat installation docs.

Add your notes

Installing JIRA on Tomcat 5.5

Full Size

This section describes how to install JIRA on Tomcat 5.5, a popular open-source server from the Apache Jakarta project.

Tomcat can be downloaded from the Apache site.

On this page:

- Before You Begin
- 1. Unpack JIRA
- 2. Configure JIRA
    - 2.1 Database Connection
    - 2.2 Set JIRA Home
- 3. Build JIRA
- 4. Update Tomcat Libraries
- 5. Configure Tomcat
- 6. Modify Tomcat server.xml
- 7. Fix Tomcat memory settings
- 8. Set mail.mime.decodeparameters
- 9. Start Tomcat
- Troubleshooting
- User-contributed notes

Before You Begin

- Please use Tomcat 5.5.15 or higher. All versions of Tomcat effectively leak memory by caching JSPs, which can result in OutOfMemoryErrors if large pages (eg. RSS or Excel) are requested. In 5.5.15+ there is a flag you should set to disable this caching.
- If you are using version 5.5.25 or higher of Tomcat 5, with a MySQL database, you must set up Tomcat to survive connection closures. These versions of Tomcat have been noted to exhibit problems maintaining connections to MySQL databases. Please read this document for details on the changes required.
- Deploying multiple Atlassian applications in a single Tomcat container is **not supported.** We do not test this configuration and upgrading any of the applications (even for point releases) is likely to break it. There are also a number of known issues with this configuration (see this FAQ for more information).

  We also strongly recommend that you do not deploy multiple Atlassian applications in a single Tomcat container for a number of practical reasons. Firstly, you will need to shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in the Tomcat container will be inaccessible.

- The JIRA 'Standalone' download is JIRA preconfigured with a copy of Tomcat 6.0.20. If you have JIRA Standalone, you don't need to follow the steps below.

1. Unpack JIRA

Download and unzip JIRA (but not with XP's unzipper nor the default tar utility on Solaris). Ensure that you download the **WAR/EAR version,** not the Standalone version that is recommended on the Downloads page.

> **Avoid the Windows XP built-in unzip tool!** The built-in unzip tool in Windows XP is broken — it silently fails to extract files with long names (see JRA-2153). Other users have also reported problems using WinRAR. Please use another tool like WinZIP to unpack JIRA.

> **Avoid the Solaris default tar utility!** On Solaris, please use **GNU tar** to unpack JIRA in order to handle long filenames. Do not use the Solaris default tar utility.

A new directory containing JIRA will be created, hereafter referred to as `$JIRA_INSTALL`.

> A dedicated user should be created to run JIRA, as JIRA runs as the user it is invoked under and therefore can potentially be abused. Here is an example of how to create a dedicated user to run JIRA in Linux/Solaris:
>
> ```
> $ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell /bin/bash jira
> ```
>
> To maximise security, ensure that this user can only write to the JIRA directories (not to the entire file system).

2. Configure JIRA

2.1 Database Connection

JIRA needs to be told what type of database you'll be using. The database is specified in `$JIRA_INSTALL/edit-webapp/WEB-INF/classes/entityengine.xml` . Locate the **<datasource>** tag near the bottom, and change the **field-type-name** attribute value:

```
<datasource name="defaultDS"
          field-type-name="hsql"
          schema-name="PUBLIC"
          helper-class="org.ofbiz.core.entity.GenericHelperDAO"
          check-on-start="true"
          use-foreign-keys="false"
          use-foreign-key-indices="false"
          check-fks-on-start="false"
          check-fk-indices-on-start="false"
          add-missing-on-start="true">
          <jndi-jdbc jndi-server-name="default"
          jndi-name="java:comp/env/jdbc/JiraDS" />
        </datasource>
```

Possible values include **cloudscape, db2, firebird, hsql, mckoidb, mysql, mssql, oracle, postgres, postgres72, sapdb,** and **sybase**

For PostgreSQL 7.3+, you also need to set a **schema-name** attribute. Refer to Connecting JIRA to PostgreSQL for details.

Also in `entityengine.xml` , ensure the `<transaction-factory>...</transaction-factory>` tag contains:

```
<transaction-factory class="org.ofbiz.core.entity.transaction.JNDIFactory">
        <user-transaction-jndi jndi-server-name="default"
jndi-name="java:comp/env/UserTransaction"/>
      <transaction-manager-jndi jndi-server-name="default"
jndi-name="java:comp/env/UserTransaction"/>
    </transaction-factory>
```

More details on JIRA's database access layer are available on the EntityEngine configuration page.

2.2 Set JIRA Home

To specify the location of your JIRA Home Directory (note that you need to do this *before* you build JIRA):

- Edit the `jira-application.properties` file (see the JIRA Installation Directory page to find where this file is located), add a 'jira.home' property and set it to your desired location for the JIRA home directory. Please use forward-slashes ("/"), not back-slashes ("\").

You can specify any location on a disk for your JIRA home directory. Please be sure to specify an absolute path.

Please note that you cannot use the same JIRA home directory for multiple instances of JIRA. We recommend that you do not specify your JIRA home directory to be inside your installation directory, to prevent information from being accidentally lost during major operations (e.g. backing up and restoring instances).

3. Build JIRA

Now build JIRA by typing **build** (Windows) or **./build.sh** (Unix) on the command line in the $JIRA_INSTALL directory. This will produce the deployable WAR file in the **$JIRA_INSTALL/dist-tomcat** directory.

4. Update Tomcat Libraries

Tomcat does not come with some libraries required to run JIRA. To fix this, download

http://www.atlassian.com/software/jira/downloads/binary/jira-jars-tomcat-distribution-4.3-rc1-tomcat-5x.zip

and copy the contained jars to Tomcat's `common/lib/` directory. Be sure to remove existing versions of these JAR before copying the new ones.

5. Configure Tomcat

A JIRA 'context' now needs to be set up in Tomcat. To do this:

1. Copy **dist-tomcat/tomcat-5.5/jira.xml** from the built JIRA distribution to your Tomcat's **conf/Catalina/localhost/** directory.
2. Customise the copied **jira.xml** as follows:

```
<Context path="/jira" docBase="path/to/atlassian-jira-4.1.war">
  <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            username="sa"
            password=""
            driverClassName="org.hsqldb.jdbcDriver"
            url="jdbc:hsqldb:path/to/database/jiradb/"
            minEvictableIdleTimeMillis="4000"
            timeBetweenEvictionRunsMillis="5000"/>

  <Resource name="UserTransaction" auth="Container" type="javax.transaction.UserTransaction"
    factory="org.objectweb.jotm.UserTransactionFactory" jotm.timeout="60"/>
  <Manager pathname=""/>
</Context>
```

The paths (denoted as **path/to/)** will be correct by default, assuming you want to deploy the .war from the **dist-tomcat/** directory.

If you are *not* using hsqldb, make sure you comment out the `minEvictableIdleTimeMillis` and `timeBetweenEvictionRunsMillis` params, or JIRA will run slower than normal.

If you are installing in Windows, make sure that the paths you specify for the location of the WAR file and database are full paths with drive letters (e.g. c:\yourdb\tomcatdb). **N.B.** the last part of the path is the name of the database and is not a directory.The above example assumes you are using hsql (an in-memory database — a good choice for evaluation purposes). Here is an example using MySQL:

```
<Context path="/jira" docBase="path/to/atlassian-jira-3.13.war">
  <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
    username="jirauser"
    password="mypassword"
    driverClassName="com.mysql.jdbc.Driver"
    url="jdbc:mysql://localhost/jiradb?useUnicode=true&amp;characterEncoding=UTF8"
    maxActive="20"
    validationQuery="select 1"/>
  <Resource name="UserTransaction" auth="Container" type="javax.transaction.UserTransaction"
    factory="org.objectweb.jotm.UserTransactionFactory"
    jotm.timeout="60"/>
  <Manager pathname=""/>
</Context>
```

Notice the lack of `minEvictableIdleTimeMillis` and `timeBetweenEvictionRunsMillis` parameters — those should **only** be used with hsql.

3. If using a different database than hsql,
   - copy the JDBC driver jar to `common/lib/` (see the database configuration guide); and
   - ensure you have updated the **field-type-name** (see above).

6. Modify Tomcat server.xml

In order for JIRA to correctly display internationalised characters in user and group names you need to modify your Tomcat distributions `conf/server.xml` file. You need to set the property `URIEncoding="UTF-8"` within the connector definition for your http protocol. The connector block should look very much like this:

```
<Connector port="8080" maxHttpHeaderSize="8192"
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" redirectPort="8443" acceptCount="100"
    connectionTimeout="20000" disableUploadTimeout="true"/>
```

You should modify the block to contain the addition of the `URIEncoding` property:

```
<Connector port="8080" maxHttpHeaderSize="8192"
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" redirectPort="8443" acceptCount="100"
    connectionTimeout="20000" disableUploadTimeout="true" URIEncoding="UTF-8"/>
```

Note
Because you must define this property in at the connector level this setting will effect all web-applications you have deployed under the connector. This should not adversely effect the other web-applications but please be aware of this. JIRA will run fine without this property set but you will run into issues if a user or group is created which contains international characters. It is best to set this property to true.

7. Fix Tomcat memory settings

This only works for Tomcat 5.5.15 and higher!

Tomcat has a memory leak where large JSP page requests can fill up memory. To avoid this, edit Tomcat's `bin/setenv.sh` (create it if it does not exist) and set:

```
export CATALINA_OPTS="$CATALINA_OPTS
-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true"
```

or when installed as a Windows service, run:

```
tomcat5 //US//JIRA ++JvmOptions="-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true
```

For other environments, and for more info on memory settings, see the memory settings page.

8. Set mail.mime.decodeparameters

The following system property must be set in order for the JIRA mail handler to work correctly with emails from RFC 2231-compliant mail clients:

Refer to Setting Properties and Options on Startup for instructions.

9. Start Tomcat

JIRA should now be ready to run in Tomcat. To start using JIRA, first start (or restart) the Tomcat server with Tomcat's `bin/startup.(sh|bat)` scripts, and point your browser to http://localhost:8080/jira

You should now see the Setup Wizard, which will take you through the brief setup procedure.

Troubleshooting

It is easy to make a mistake in this process, and even more so if you are trying to connect to a database other than hsqldb. First, check that you have followed the process described above:

- If you are using an external database (not hsqldb), have you set the **field-type-name** attribute in **$JIRA_INSTALL/edit-webapp/WEB-INF/classes/entityengine.xml** ? (step 2)
- Have you previously started JIRA with an incorrect **field-type-name** value? If so, the database schema would have been created incorrectly.
- If you have made changes to **$JIRA_INSTALL/edit-webapp/WEB-INF/classes/entityengine.xml** (step 2) and re-run the build script (step 3), but your changes are not being picked up, delete the Tomcat `webapps/jira` directory, then restart JIRA. It would seem that in some circumstances Tomcat does not correctly re-expand the web application.
- Have you copied the extra Tomcat jars (step 4)? Check if you have `common/lib/objectweb-datasource-1.4.3.jar` present.
- If using an external database, did you copy the JDBC driver jar to `common/lib/` (step 5)?
- Is the path to the .war file in **conf/Catalina/localhost/jira.xml** correct?
- Have you copied the .war file to Tomcat's **webapps/** directory? This is almost guaranteed to cause pain - please move it elsewhere, and delete any JIRA subdirectories created in **webapps/** from previous Tomcat starts.
- Have you configured JIRA centrally in **conf/server.xml** instead of in **conf/Catalina/localhost/jira.xml** ? This is fine, but then be sure you *don't* also have a **conf/Catalina/localhost/jira.xml** present.
- The log files are usually vital to debugging problems. On Windows, these will appear in the console window that loads when running `startup.bat` , or in one of the log files in the `logs/` directory. On Linux/Unix, logs will appear in a log file in `logs/`, usually `logs/catalina.out`. Check the log file for errors after startup.
- If you experience high memory usage / memory leaks (e.g. OutOfMemoryError), you may wish to set the system property `-Dorg.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER=true` in **setenv.sh** / **setenv.bat.** This property is only valid for Tomcat 5.5.15 and later. For more information please see JRA-10145.
- If the connection to your MySQL database is dropping, you will need to set up Tomcat to survive connection closures.

- Please note: The `build.xml` file is an Ant file, which when invoked with the `build.`(sh|bat) script, will construct a deployable webapp. The `build.xml` file does this by copying the contents of the `webapp/` directory, and overwriting it with the contents of `edit-webapp/`. Thus, never edit files in the `webapp/` directory! **If a file needs editing, first copy it from `webapp/path/to/file` to `edit-webapp/path/to/file`, and edit it there**.

If you're stuck, please raise a support request, and attach your logs, configuration files, plus anything else relevant, and we'll get back to you as soon as possible. If you have a general question, please try the jira-user mailing list (which Atlassian staff monitor).

User-contributed notes

Have experiences to share with Tomcat 5.5.x and JIRA? We welcome your thoughts. Please see the user-contributed Tomcat 5.5.x notes.

Tomcat 5.5 notes

This page has general notes on installing JIRA on Tomcat 5.5.x. It supplements the official Tomcat installation docs.

A user writes:

There is a readme file shipped with JIRA. It said that you need to change port 8080 in order to get Tomcat(say a) to start up. **BUT**, if you have a **CATALINA_HOME** environment variable already set for an existing Tomcat(say b) running on the same server, running startup from the bin directory will start up Tomcat(b). For Tomcat(a) to start one needs to delete the existing **CATALINA_HOME** environment variable as well.

Deploying Multiple Atlassian Applications in a Single Tomcat Container

Deploying multiple Atlassian applications in a single Tomcat container is **not supported**. Upgrading any of the applications (even for point releases) is likely to break it. There are also a number of known issues with this configuration:

- You may not be able to start up all of the applications in the container, due to class conflicts (in 3rd party libraries bundled with our application) that result from the Atlassian applications sharing a single JVM in the Tomcat container.
- You will not be able to determine the startup order of the applications. Hence, you may experience problems such as JIRA starting before Crowd, rather than vice versa.
- Memory problems are also common as one application may allocate all of the memory in the Tomcat JVM to itself, starving the other applications.

We also recommend that you do not deploy multiple Atlassian applications in a single Tomcat container for a number of practical reasons:

- You will need to shut down Tomcat to upgrade any application.
- If one application crashes, the other applications running in the Tomcat container will be inaccessible.

Connecting JIRA to a Database

Full Size

JIRA requires a relational database for storage of issue data.

The time at which you connect JIRA to a database depends on whether you are using the JIRA Standalone distribution or the JIRA WAR/EAR distribution:

JIRA Standalone:	As part of its installation process, JIRA Standalone automatically installs, configures and connects itself to an HSQLDB database. This is fine for evaluation purposes, however HSQLDB is prone to database corruption. For production installations, we strongly recommend that you connect JIRA Standalone to an enterprise database. This also lets you take advantage of existing database backup and recovery procedures.
JIRA WAR/EAR:	When you install JIRA WAR/EAR, you will need to manually configure your database connection.

The following instructions apply to both JIRA Standalone and JIRA WAR/EAR:

- Connecting JIRA to MySQL
- Connecting JIRA to PostgreSQL
- Connecting JIRA to SQL Server 2005
- Connecting JIRA to SQL Server 2008
- Connecting JIRA to Oracle
- Connecting JIRA to HSQLDB
- Switching Databases

Which database?

Your choice of database can significantly affect your subsequent experience of JIRA administration. If you have a choice of databases, please first read our list of supported databases.

> If you are looking for a low-cost solution, consider using MySQL or PostgreSQL as both of these are open source (free) software.

Data migration

To transfer your issue data from one database to another, please refer to the instructions for Switching databases.

Connecting JIRA to MySQL

Full Size

These instructions will help you connect JIRA to a MySQL 5.1.x database.

Note: A Linux-specific version of these instructions is available.

On this page:

- 1. Before you begin:
  - 1.1 Export your existing JIRA data
  - 1.2 Shut down JIRA
  - 1.3 Known issues with MySQL
- 2. Configure MySQL
- 3. Copy the MySQL driver to your application server
- 4. Use the JIRA Configuration Tool
- 5. Configure the database connection manually
  - 5.1. Configure your application server to connect to MySQL
  - 5.2 Configure the JIRA Entity Engine
  - 5.2 Next steps
- Installation notes

1. Before you begin:

1.1 Export your existing JIRA data

If you are already using JIRA, create an export of your data as an XML backup. You will then be able to transfer data from your old database to your new database, as described in Switching databases.

1.2 Shut down JIRA

1.3 Known issues with MySQL

If you are using a MySQL database with any of the following:

- JIRA 3.13 Standalone or above,
- version 5.5.25 or higher of Tomcat 5,
- version 6.0.13 or higher of Tomcat 6,

you may experience problems with your connections dropping out (see http://jira.atlassian.com/browse/JRA-15731 for details). Please read Surviving Connection Closures for information on the changes required to your application server to address this.

If you experience any other issues with using JIRA and MySQL, please refer to our additional notes for more information.

2. Configure MySQL

1. Create a database user which JIRA will connect as (e.g. **`jirauser`**).
2. Create a database for JIRA to store issues in (e.g. **`jiradb`**). The database must have a character set of UTF8. Enter the following command from within the MySQL command client:

```
create database jiradb character set utf8;
```

   (if you want your database to be named **`jiradb`**).

3. Ensure that the user has permission to connect to the database, and permission to create and populate tables.
4. Ensure MySQL is using a transactional database. Because parts of JIRA use transactions, you need to ensure that your MySQL database uses the **InnoDB** storage engine.

   > **Avoid using MyISAM** as the storage engine for your JIRA database as this can lead to data corruption - JRA-24124.

   Be aware that JIRA uses the 'READ-COMMITTED' transaction isolation level with MySQL, which currently only supports row-based binary logging. If you use JIRA with a MySQL database whose storage engine is InnoDB ***AND*** require MySQL's binary logging features, you must configure MySQL's binary logging format to be 'row-based'. If not, you may encounter problems when creating issues in JIRA. For more information, please refer to JIRA Cannot Create Issues when Using MySQL with Binary Logging.

3. Copy the MySQL driver to your application server

> Skip this step if you are using JIRA Standalone distribution, as JIRA Standalone includes the driver.

1. Download the MySQL Connector/J JDBC driver v5.1

   > A user has reported encountering problems using the Resin JDBC driver for MySQL. However, the Connector/J driver from MySQL works correctly

2. Add the MySQL JDBC driver jar (**`mysql-connector-java-5.x.x-bin.jar`**) to the `lib/` directory.

4. Use the JIRA Configuration Tool

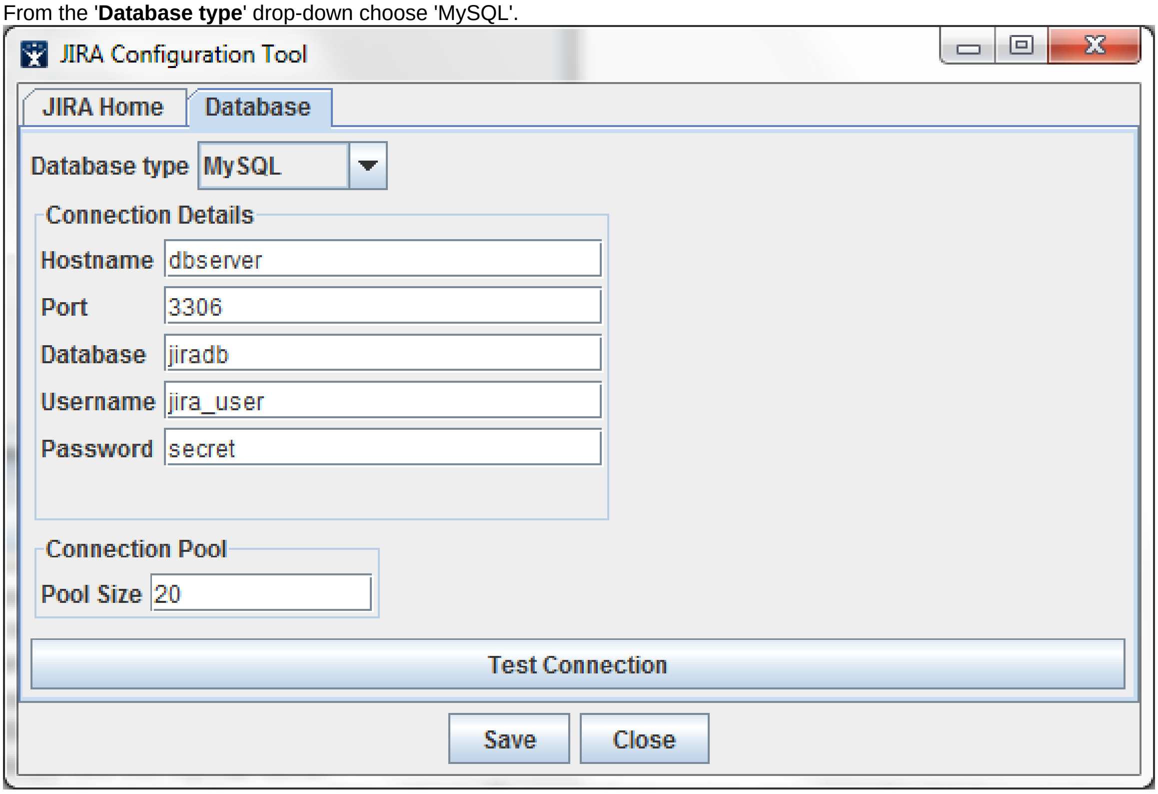
> The JIRA Configuration Tool is a GUI tool only available if you are using JIRA Standalone distribution. If you are running a WAR-EAR distribution of JIRA, or have a text-only connection to the JIRA server, you will need to configure the files manually.
>
> The JIRA Configuration Tool requires that Java be installed and configured on your operating system. We recommend using a Java platform supported by JIRA — refer to JIRA Requirements for details.

- **For Windows:** Run `config.bat` in the `bin` subdirectory of the JIRA Installation Directory.

- **For other supported operating systems:** Run `config.sh` in the `bin` subdirectory of the JIRA Installation Directory.

The Configuration Tool will display your current configuration settings if any are already set.

1. Click the '**Database**' tab.
2. From the '**Database type**' drop-down choose 'MySQL'.



3. Fill in the connection details for your MySQL database:
   - **Hostname** — The name or IP address of the machine that the MySQL DB is installed on.
   - **Port** — The TCP/IP port that the MySQL server is listening on. You can leave this blank to use the default port.
   - **Database** — The database that you want to save your data in.
   - **Username** — The user to connect to the MySQL server as.
   - **Password** — The password to use to authenticate with the MySQL server.
4. After typing in your settings, use the '**Test Connection**' button to test the connection settings. The tool will attempt to connect to the database, and give a message with the results.
5. Click '**Save**' to save your settings when you are done.
6. Restart JIRA in order for your new settings to take effect.

Congratulations — you have finished!

5. Configure the database connection manually

Skip this step if you used the JIRA Configuration Tool (see above).

5.1. Configure your application server to connect to MySQL

1. Edit **`conf/server.xml`** (if you are using JIRA Standalone) and customise the `username`, `password`, `driverClassName` and `url` parameters for the Datasource. (If you are using JIRA WAR/EAR, edit the appropriate file on your application server; e.g. for Tomcat, edit **`conf/Catalina/localhost/jira.xml`**).

   The URL in the XML below assumes a UTF-8 database — i.e. created with `create database jiradb character set utf8;`. If you don't specify `character set utf8` you risk getting '`Data truncation: Data too long for column`' errors when importing data or corruption of non-supported characters. See storing non-ASCII characters in MySQL for details.

   Note: if entered into an XML file, escape the '&' by adding '`amp;`' to the end of it, as follows:

```
<Server port="8005" shutdown="SHUTDOWN">

  <Service name="Catalina">

    <Connector port="8080"
      maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
      enableLookups="false" redirectPort="8443" acceptCount="100"
      connectionTimeout="20000" disableUploadTimeout="true" />

    <Engine name="Catalina" defaultHost="localhost">
      <Host name="localhost" appBase="webapps" unpackWARs="true" autoDeploy="true">

        <Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
          <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            username="[enter db username]"
            password="[enter db password]"
            driverClassName="com.mysql.jdbc.Driver"
            url="jdbc:mysql://localhost/jiradb?useUnicode=true&amp;characterEncoding=UTF8"
            [ delete the minEvictableIdleTimeMillis and timeBetweenEvictionRunsMillis params
here ]
            maxActive="20"
            [ If maxActive is not set it uses the default number of the connections (8),
which may be too little and can cause performance issues ]
            validationQuery="select 1"/>

          <Resource name="UserTransaction" auth="Container"
type="javax.transaction.UserTransaction"
            factory="org.objectweb.jotm.UserTransactionFactory" jotm.timeout="60"/>
          <Manager pathname=""/>
        </Context>

      </Host>
    </Engine>
  </Service>
</Server>
```

(Note: if you can't find this section at all, you've probably got the wrong file - search for mentions of 'jira' in the files under `conf/`.)

2. If you are using JIRA Standalone, edit `conf/server.xml`, and delete the **`minEvictableIdleTimeMillis`** and **`timeBetweenEvictionRunsMillis`** attributes (which are only needed for HSQL, and degrade performance otherwise).
3. If you want to set up connection validation for your application server (i.e. your database connections are dropping out), you will need to add the `validationQuery` parameter to the Datasource and set it to "select 1". See the XML above for an example of this.

5.2 Configure the JIRA Entity Engine

1. Edit **`atlassian-jira/WEB-INF/classes/entityengine.xml`** (if you are using JIRA Standalone) or **`edit-webapp/WEB-INF/classes/entityengine.xml`** (JIRA WAR/EAR), and change the `field-type-name` attribute to **`mysql`**. (If you forget to do this and start JIRA, it may create database tables incorrectly. See this page if this happens to you). Also delete the `schema-name="PUBLIC"` attribute, if it exists:

```
<!-- DATASOURCE - You will need to update this tag for your installation.

-->
  <datasource name="defaultDS" field-type-name="mysql"[ delete this, if it exists:
schema-name="PUBLIC" ]
      helper-class="org.ofbiz.core.entity.GenericHelperDAO"
      check-on-start="true"
      use-foreign-keys="false"
      ...
```

If you are using JIRA WAR/EAR, your application server may require other changes to `entityengine.xml` (e.g. to customise the `jndi-jdbc` tag).

5.2 Next steps

You should now have an application server configured to connect to a database, and JIRA configured to use the correct database type. If you are using JIRA Standalone, start it up and watch the logs for any errors. If you are using the JIRA WAR/EAR distribution, rebuild and redeploy the webapp in your application server.

Installation notes

Please see JIRA and MySQL.

Connecting JIRA to PostgreSQL

Full Size

These instructions will help you connect JIRA to a PostgreSQL 8.2+ database.

Note: *A version of these instructions specific to Linux and JIRA Standalone is available.*

On this page:

- 1. Before you begin
  - 1.1 Export your existing JIRA data
  - 1.2 Shut down JIRA
- 2. Configure PostgreSQL
- 3. Copy the PostgreSQL driver to your application server
- 4. Use the JIRA Configuration Tool
- 5. Configure the database connection manually
  - 5.1. Configure your application server to connect to PostgreSQL
  - 5.2 Configure the JIRA Entity Engine
  - 5.3. Next steps
- Installation notes

1. Before you begin

1.1 Export your existing JIRA data

If you are already using JIRA, create an export of your data as an XML backup. You will then be able to transfer data from your old database to your new database, as described in Switching databases.

1.2 Shut down JIRA

2. Configure PostgreSQL

1. Create a database user which JIRA will connect as (e.g. **`jirauser`**).
2. Create a database for JIRA to store issues in (e.g. **`jiradb`**) with Unicode collation

   ```
   CREATE DATABASE jiradb WITH ENCODING 'UNICODE';
   ```

   Or from the command-line:

   ```
   $ createdb -E UNICODE jiradb
   ```

3. Ensure that the user has permission to connect to the database, and create and populate tables.

3. Copy the PostgreSQL driver to your application server

> Skip this step if you are using JIRA Standalone, as JIRA Standalone includes the driver.

1. Download the PostgreSQL JDBC driver from http://jdbc.postgresql.org/download.html. (If you have Java 1.6 installed, get version 8.4 of the **JDBC 4** driver.)
2. Add the PostgreSQL JDBC driver jar to the `lib/` directory.

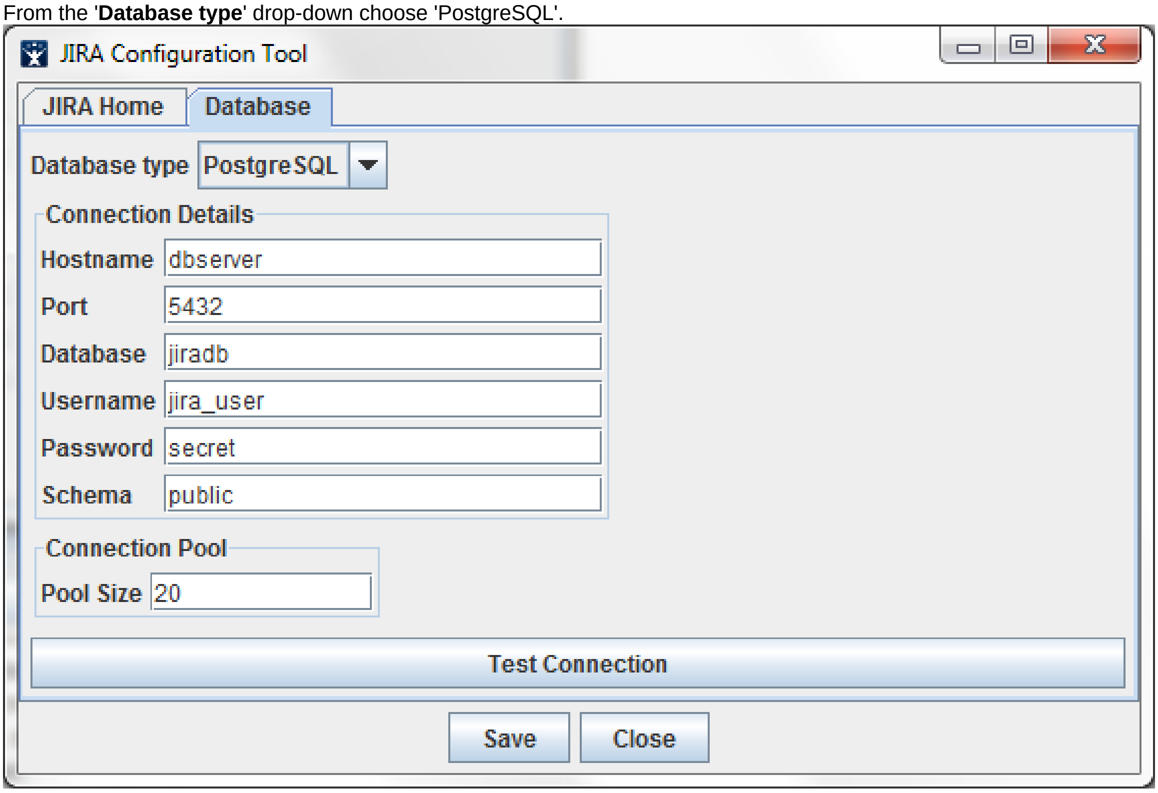
4. Use the JIRA Configuration Tool

> The JIRA Configuration Tool is a GUI tool only available if you are using JIRA Standalone distribution. If you are running a WAR-EAR distribution of JIRA, or have a text-only connection to the JIRA server, you will need to configure the files manually.
>
> The JIRA Configuration Tool requires that Java be installed and configured on your operating system. We recommend using a Java platform supported by JIRA — refer to JIRA Requirements for details.

- **For Windows:** Run `config.bat` in the `bin` subdirectory of the JIRA Installation Directory.
- **For other supported operating systems:** Run `config.sh` in the `bin` subdirectory of the JIRA Installation Directory.

The Configuration Tool will display your current configuration settings if any are already set.

1. Click the '**Database**' tab.
2. From the '**Database type**' drop-down choose 'PostgreSQL'.



3. Fill in the connection details for your PostgreSQL database:
   - **Hostname** — The name or IP address of the machine that the PostgreSQL DB is installed on.
   - **Port** — The TCP/IP port that the PostgreSQL server is listening on.
     You can leave this blank to use the default port.
   - **Database** — The database that you want to save your data in.
   - **Username** — The user to connect to the PostgreSQL server as.
   - **Password** — The password to use to authenticate with the PostgreSQL server.
   - **Schema** — You can use this to configure a schema on the PostgreSQL server. Please ensure the schema name in the database is upper-case.
4. After typing in your settings, use the '**Test Connection**' button to test the connection settings. The tool will attempt to connect to the database, and give a message with the results.
5. Click '**Save**' to save your settings when you are done.
6. Restart JIRA in order for your new settings to take effect.

Congratulations — you have finished!

5. Configure the database connection manually

Skip this step if you used the JIRA Configuration Tool (see above).

5.1. Configure your application server to connect to PostgreSQL

1. Edit **`conf/server.xml`** (if you are using JIRA Standalone) and customise the `username`, `password`, `driverClassName` and `url` parameters for the Datasource. (If you are using JIRA WAR/EAR, edit the appropriate file on your application server; e.g. for Tomcat, edit **`conf/Catalina/localhost/jira.xml`**).

```
<Server port="8005" shutdown="SHUTDOWN">

<Service name="Catalina">

<Connector port="8080"
maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" redirectPort="8443" acceptCount="100"
connectionTimeout="20000" disableUploadTimeout="true" />

<Engine name="Catalina" defaultHost="localhost">
<Host name="localhost" appBase="webapps" unpackWARs="true" autoDeploy="true">

<Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
username="[enter db username]"
password="[enter db password]"
driverClassName="org.postgresql.Driver"
url="jdbc:postgresql://host:port/database" [see also http://jdbc.postgresql.org/doc.html ]
[ delete the minEvictableIdleTimeMillis and timeBetweenEvictionRunsMillis params here ]
maxActive="20"
[ if maxActive is not set it uses the default number of the connections (8), which may be
too little and can cause performance issues ]
/>

<Resource name="UserTransaction" auth="Container" type="javax.transaction.UserTransaction"
factory="org.objectweb.jotm.UserTransactionFactory" jotm.timeout="60"/>
<Manager className="org.apache.catalina.session.PersistentManager" saveOnRestart="false"/>
</Context>

</Host>
</Engine>
</Service>
</Server>
```

(Note: if you can't find this section at all, you've probably got the wrong file - search for mentions of 'jira' in the files under `conf/`.)

1. If you are using JIRA Standalone, edit `conf/server.xml`, and delete the **`minEvictableIdleTimeMillis`** and **`timeBetweenEvictionRunsMillis`** attributes (which are only needed for HSQL, and degrade performance otherwise).
2. If you are using an application server that requires an implementation classname, there are currently two datasource providers that can be used: one that does pooling and the one that does not. For details please see the documentation: http://jdbc.postgresql.org/documentation/84/ds-ds.html

5.2 Configure the JIRA Entity Engine

1. Edit **`atlassian-jira/WEB-INF/classes/entityengine.xml`** (if you are using JIRA Standalone) or **`edit-webapp/WEB-INF/classes/entityengine.xml`** (JIRA WAR/EAR), and change the `field-type-name` attribute to the value for your database, as shown below. (If you forget to do this and start JIRA, it may create database tables incorrectly. See this page if this happens to you.)

```
<datasource name="defaultDS" field-type-name="postgres72"
schema-name="public"
helper-class="org.ofbiz.core.entity.GenericHelperDAO"
check-on-start="true"
use-foreign-keys="false"
use-foreign-key-indices="false"
check-fks-on-start="false"
check-fk-indices-on-start="false"
add-missing-on-start="true"
check-indices-on-start="true">
```

PostgreSQL 7.2 and above require a schema to be specified. The default schema in PostgreSQL is `public`. If you are working with JIRA Standalone, be sure to change schema-name from `PUBLIC` to `public` (lowercase).

> If you are using JIRA WAR/EAR, your application server may require other changes to `entityengine.xml` (e.g. to customise the `jndi-jdbc` tag).

5.3. Next steps

You should now have an application server configured to connect to a database, and JIRA configured to use the correct database type. If you are using JIRA Standalone, start it up and watch the logs for any errors. If you are using the JIRA WAR/EAR distribution, rebuild and redeploy the webapp in your application server.

Installation notes

Please see JIRA and PostgreSQL.

Connecting JIRA to SQL Server 2005

Full Size

These instructions will help you connect JIRA to a Microsoft SQL Server 2005 database.

Note

- SQL Server Express is not one of our recommended databases; however, it is possible to set up JIRA to work with this database. This external blog post contains instructions on installing JIRA on SQL Server Express 2005 that may be helpful, if you want to try this.
- Due to numerous reported performance issues with SQL Server 2000, it is recommended that you use SQL Server 2005 instead. The following instructions apply only to SQL Server 2005, not to SQL Server 2000, which is no longer supported.

On this page:

- 1. Before you begin:
  - 1.1 Export your existing JIRA data
  - 1.2 Shut down JIRA
- 2. Configure SQL Server
- 3. Copy the SQL Server driver to your application server
- 4. Use the JIRA Configuration Tool
- 5. Configure the database connection manually
  - 5.1 Configure your application server to connect to SQL Server
  - 5.2 Configure the JIRA Entity Engine
  - 5.3 Next steps
- Installation notes

1. Before you begin:

1.1 Export your existing JIRA data

If you are already using JIRA, create an export of your data as an XML backup. You will then be able to transfer data from your old database to your new database, as described in Switching databases.

1.2 Shut down JIRA

2. Configure SQL Server

1. Create a database for JIRA to store issues in (e.g. **`jiradb`**). Note that the collation type must be case insensitive, e.g.: 'SQL_Latin1_General_CP437_CI_AI' is case insensitive. If it is using your server default, check the collation type of your server.

   SQL Server uses Unicode encoding to store characters. This is sufficient to prevent any possible encoding problems.

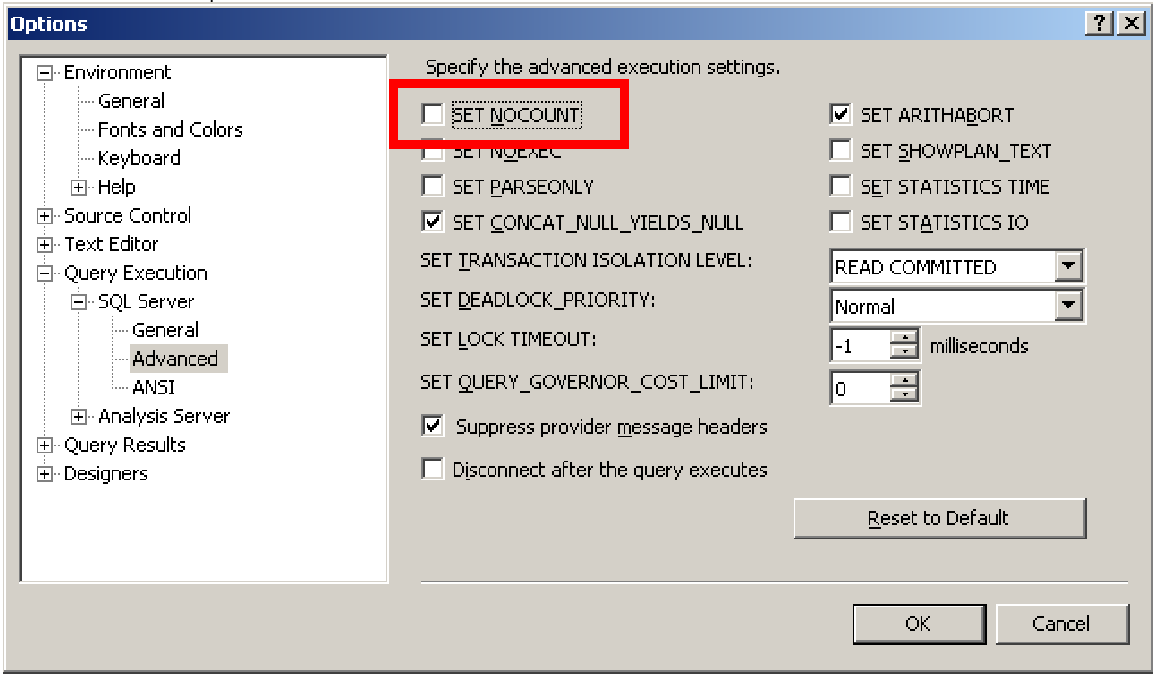
2. Create a database user which JIRA will connect as (e.g. **`jirauser`**). Note that `jirauser` should **not** be the database owner, but **should** be in the `db_owner` role. (See SQL Startup Errors for details.)
3. Create an empty 'schema' in the database (e.g. **`jiraschema`**) for the JIRA tables. Please note that a 'schema' in SQL Server 2005 is a distinct namespace used to contain objects, and is **different** from a traditional database schema. You are not required to create any of JIRA's tables, fields or relationships (JIRA will create these objects in your empty schema when it starts for the first time). You can read more on SQL Server 2005 schemas in the relevant Microsoft documentation.
4. Ensure that the user has permission to connect to the database, and create and populate tables in the newly-created schema.

   If you are having difficulties setting up your JIRA database for SQL Server, additional information is available in the Setting up your JIRA database for MS SQL Server 2005 document.

5. Ensure that TCP/IP is enabled on SQL Server and listening on the correct port (the port is 1433 for the default instance of SQL Server). Read the Microsoft documentation for information on how to enable a network protocol (TCP/IP) and how to configure SQL server to listen on a specific port.
6. Ensure that SQL Server is operating in the appropriate authentication mode. By default, SQL Server operates in 'Windows

Authentication Mode'. However, if your user is not associated with a trusted SQL connection, i.e. 'Microsoft SQL Server, Error: 18452' is received during JIRA startup, you will need to change the authentication mode to 'Mixed Authentication Mode'. Read the Microsoft documentation on authentication modes and changing the authentication mode to 'Mixed Authentication Mode'

7. Turn off the SET NOCOUNT option. (The JIRA on MS SQL Server document provides details on the errors that occur if SET NOCOUNT is set.) To turn off SET NOCOUNT:
    - Open **SQL Server Management Studio** and navigate to **Tools -> Options -> Query Execution -> SQL Server -> Advanced.** The following screenshot displays the configuration panel for this setting in MSSQL Server 2005. Ensure that the **SET NOCOUNT** option is **not selected:**



3. Copy the SQL Server driver to your application server

Skip this step if you are using JIRA Standalone, as JIRA Standalone includes the driver.

1. Download the SQL Server JDBC driver (v1.2.3) from JTDS.

    Microsoft have their own JDBC driver but we **strongly recommend avoiding it** after receiving many reports of intermittent disconnections (JRA-5760, JRA-6872), workflow problems (JRA-8443) and Chinese character problems (JRA-5054).

2. Add the SQL Server JDBC driver jar (jtds-1.2.3.jar) to the `<Tomcat install>/lib/` directory.

4. Use the JIRA Configuration Tool

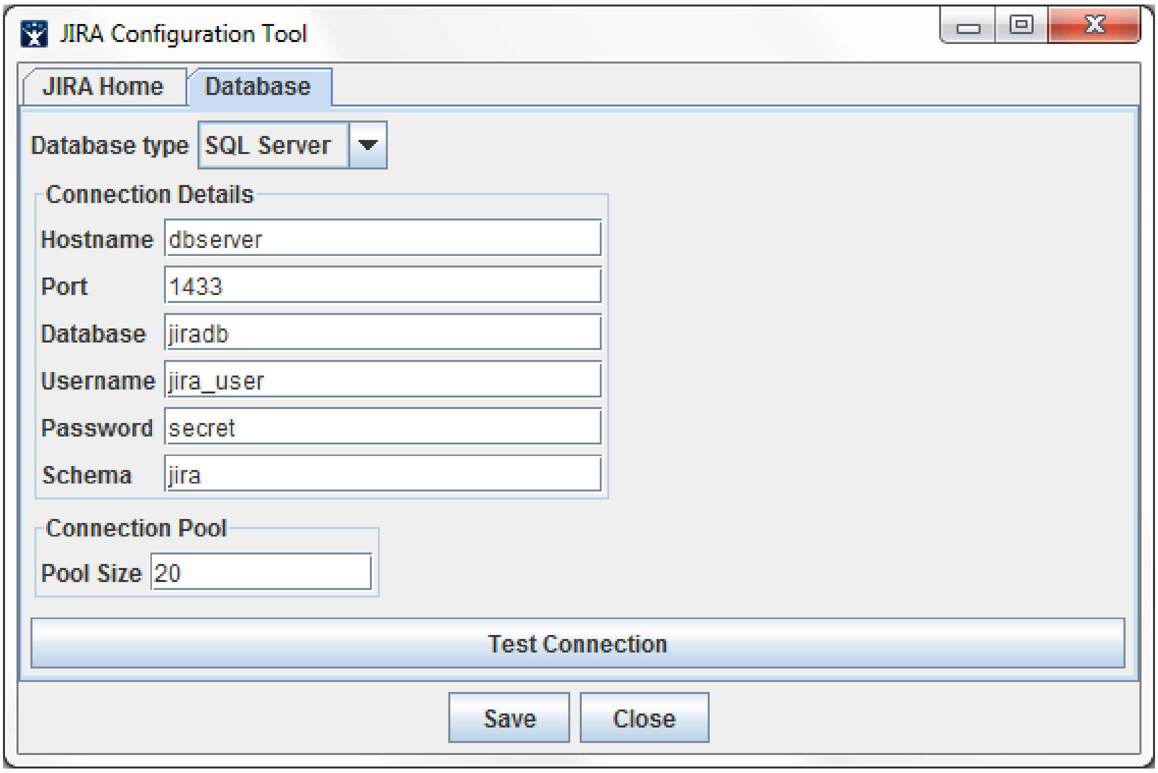
The JIRA Configuration Tool is a GUI tool only available if you are using JIRA Standalone distribution. If you are running a WAR-EAR distribution of JIRA, or have a text-only connection to the JIRA server, you will need to configure the files manually.

The JIRA Configuration Tool requires that Java be installed and configured on your operating system. We recommend using a Java platform supported by JIRA — refer to JIRA Requirements for details.

- **For Windows:** Run `config.bat` in the `bin` subdirectory of the JIRA Installation Directory.
- **For other supported operating systems:** Run `config.sh` in the `bin` subdirectory of the JIRA Installation Directory.

The Configuration Tool will display your current configuration settings if any are already set.

1. Click the '**Database**' tab.
2. From the '**Database type**' drop-down choose 'SQL Server'.



3. Fill in the connection details for your SQL Server database:
   - **Hostname** — The name or IP address of the machine that SQL Server is installed on.
   - **Port** — The TCP/IP port that SQL Server is listening on. You can leave this blank to use the default port.
   - **Database** — The database that you will be connecting to.
   - **Username** — The user to connect to SQL Server as.
   - **Password** — The password to use to authenticate with SQL Server.
   - **Schema** — The schema that you want the DB tables created under.
4. After typing in your settings, use the '**Test Connection**' button to test the connection settings. The tool will attempt to connect to the database, and give a message with the results.
5. Click '**Save**' to save your settings when you are done.
6. Restart JIRA in order for your new settings to take effect.

Congratulations — you have finished!

5. Configure the database connection manually

> Skip this step if you used the JIRA Configuration Tool (see above).

5.1 Configure your application server to connect to SQL Server

1. Edit the server configuration file and customise the `username` , `password` , `driverClassName` and `url` parameters for the Datasource, as shown in the code sample below.
   - If you are using JIRA Standalone, the server configuration file that you need to edit is **`conf/server.xml`** .
   - If you are using JIRA WAR/EAR, edit the appropriate file on your application server, e.g. for Tomcat, edit **`conf/Catalina/localhost/jira.xml`** . (Note: if you can't find this section at all, you've probably got the wrong file — search for mentions of 'jira' in the files under `conf/` .)

```
<Server port="8005" shutdown="SHUTDOWN">

  <Service name="Catalina">

    <Connector port="8080"
      maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
      enableLookups="false" redirectPort="8443" acceptCount="100"
      connectionTimeout="20000" disableUploadTimeout="true" />

    <Engine name="Catalina" defaultHost="localhost">
      <Host name="localhost" appBase="webapps" unpackWARs="true" autoDeploy="true">

        <Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
          <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            username="[enter db username]"
            password="[enter db password]"
            driverClassName="net.sourceforge.jtds.jdbc.Driver"
            url="jdbc:jtds:sqlserver://localhost:1433/jiradb"
            [ delete the minEvictableIdleTimeMillis and timeBetweenEvictionRunsMillis params here
]
            maxActive="20"
            [ if maxActive is not set it uses the default number of the connections (8), which may
be too little and can cause performance issues ]
            />

          <Resource name="UserTransaction" auth="Container"
type="javax.transaction.UserTransaction"
            factory="org.objectweb.jotm.UserTransactionFactory" jotm.timeout="60"/>
          <Manager className="org.apache.catalina.session.PersistentManager"
saveOnRestart="false"/>
        </Context>

      </Host>
    </Engine>
  </Service>
</Server>
```

If you are using JIRA Standalone, you will also need to edit `conf/server.xml` , and delete the **`minEvictableIdleTimeMillis`** and **`timeBetweenEvictionRunsMillis`** attributes. These attributes are only needed for HSQL, and will degrade performance if they are not removed.

In the example above, jiradb is the connection name. You may also have an instance name such that the connection string is jdbc:jtds:sqlserver://localhost:1433/jiradb.

5.2 Configure the JIRA Entity Engine

1. Edit the JIRA Entity Engine configuration file and change the `field-type-name` attribute to **`mssql`** .
    - If you are using JIRA Standalone, the JIRA Entity Engine configuration file that you need to edit is **`atlassian-jira/WEB-INF/classes/entityengine.xml`** .
    - If you are using JIRA WAR/EAR, the JIRA Entity Engine configuration file that you need to edit is **`edit-webapp/WEB-INF/classes/entityengine.xml`** . If you forget to do to make this change and start JIRA, it may create database tables incorrectly. See this page if this happens to you.
2. Change **`schema-name="PUBLIC"`** to the name of the schema associated with the database (i.e. the schema you created in step 2 above), e.g. **`schema-name="jiraschema"`** . Note that the schema must exist in the database before you perform this step.

```
<!-- DATASOURCE - You will need to update this tag for your installation.

-->
  <datasource name="defaultDS" field-type-name="mssql"
      schema-name="jiraschema"
      helper-class="org.ofbiz.core.entity.GenericHelperDAO"
    check-on-start="true"
    use-foreign-keys="false"
    ...
```

If you are using JIRA WAR/EAR, your application server may require other changes to `entityengine.xml` (e.g. to customise the `jndi-jdbc` tag).

5.3 Next steps

You should now have an application server configured to connect to a database, and JIRA configured to use the correct database type. The next step is to start it up!

- If you are using JIRA Standalone, start it up and watch the logs for any errors.
- If you are using JIRA WAR/EAR, rebuild and redeploy the webapp in your application server.
  Once you have the JIRA server running, you can try accessing the JIRA application in your browser.

Installation notes

Please see JIRA and MS SQL Server 2005.

Connecting JIRA to SQL Server 2008

Full Size

These instructions will help you connect JIRA to a Microsoft SQL Server 2008 database.

On this page:

- 1. Before you begin:
  - 1.1 Export your existing JIRA data
  - 1.2 Shut down JIRA
- 2. Configure SQL Server
- 3. Copy the SQL Server driver to your application server
- 4. Use the JIRA Configuration Tool
- 5. Configure the database connection manually
  - 5.1 Configure your application server to connect to SQL Server
  - 5.2 Configure the JIRA Entity Engine
  - 5.3 Next steps
- Installation notes

1. Before you begin:

1.1 Export your existing JIRA data

If you are already using JIRA, create an export of your data as an XML backup. You will then be able to transfer data from your old database to your new database, as described in Switching databases.

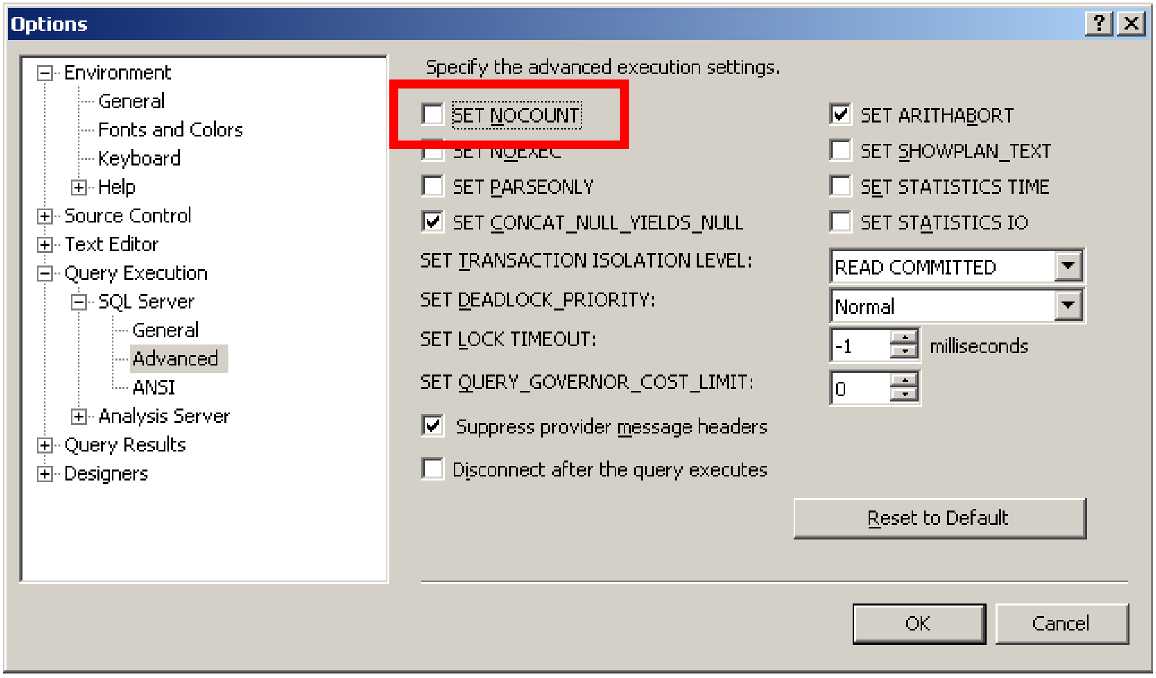
1.2 Shut down JIRA

2. Configure SQL Server

1. Create a database for JIRA to store issues in (e.g. **`jiradb`**). Note that the collation type must be case insensitive, e.g.: 'SQL_Latin1_General_CP437_CI_AI' is case insensitive. If it is using your server default, check the collation type of your server. Remember the name of this database, as it will be used again when configuring JIRA in steps 4 or 5 of this article.

   > SQL Server uses Unicode encoding to store characters. This is sufficient to prevent any possible encoding problems.

2. Create a database user which JIRA will connect as (e.g. **`jirauser`**). Note that `jirauser` should **not** be the database owner, but **should** be in the `db_owner` role. (See SQL Startup Errors for details.)
3. Create an empty 'schema' in the database (e.g. **`jiraschema`**) for the JIRA tables. Please note that a 'schema' in SQL Server 2008 is a distinct namespace used to contain objects, and is **different** from a traditional database schema. You are not required to create any of JIRA's tables, fields or relationships (JIRA will create these objects in your empty schema when it starts for the first time). You can read more on SQL Server 2008 schemas in the relevant Microsoft documentation.
4. Ensure that the user has permission to connect to the database and create and populate tables in the newly-created schema.
5. Ensure that TCP/IP is enabled on SQL Server and listening on the correct port (the port is 1433 for the default instance of SQL Server). Read the Microsoft documentation for information on how to enable a network protocol (TCP/IP) and how to configure SQL server to listen on a specific port.
6. Ensure that SQL Server is operating in the appropriate authentication mode. By default, SQL Server operates in 'Windows Authentication Mode'. However, if your user is not associated with a trusted SQL connection, i.e. 'Microsoft SQL Server, Error: 18452' is received during JIRA startup, you will need to change the authentication mode to 'Mixed Authentication Mode'. Read the Microsoft documentation on authentication modes and changing the authentication mode to 'Mixed Authentication Mode'
7. Turn off the SET NOCOUNT option. (The JIRA on MS SQL Server document provides details on the errors that occur if SET NOCOUNT is set.) To turn off SET NOCOUNT:
   - Open **SQL Server Management Studio** and navigate to **Tools -> Options -> Query Execution -> SQL Server -> Advanced.** The following screenshot displays the configuration panel for this setting in MSSQL Server 2008. Ensure that the **SET NOCOUNT** option is **not selected:**



3. Copy the SQL Server driver to your application server

Skip this step if you are using JIRA Standalone, as JIRA Standalone includes the driver.

1. Download the SQL Server JDBC driver (v1.2.3) from JTDS.

   Note
   Microsoft have their own JDBC driver but we have not tested JIRA with it. Previous versions of the MS JDBC driver have been known to cause issues: (JRA-5760, JRA-6872), workflow problems (JRA-8443) and Chinese character problems (JRA-5054).

2. Add the SQL Server JDBC driver jar (`jtds-1.2.3.jar`) to the `lib/` directory.

4. Use the JIRA Configuration Tool

You can either use the configuration tool (this section) or configure the corresponding XML file manually (see Section 5)

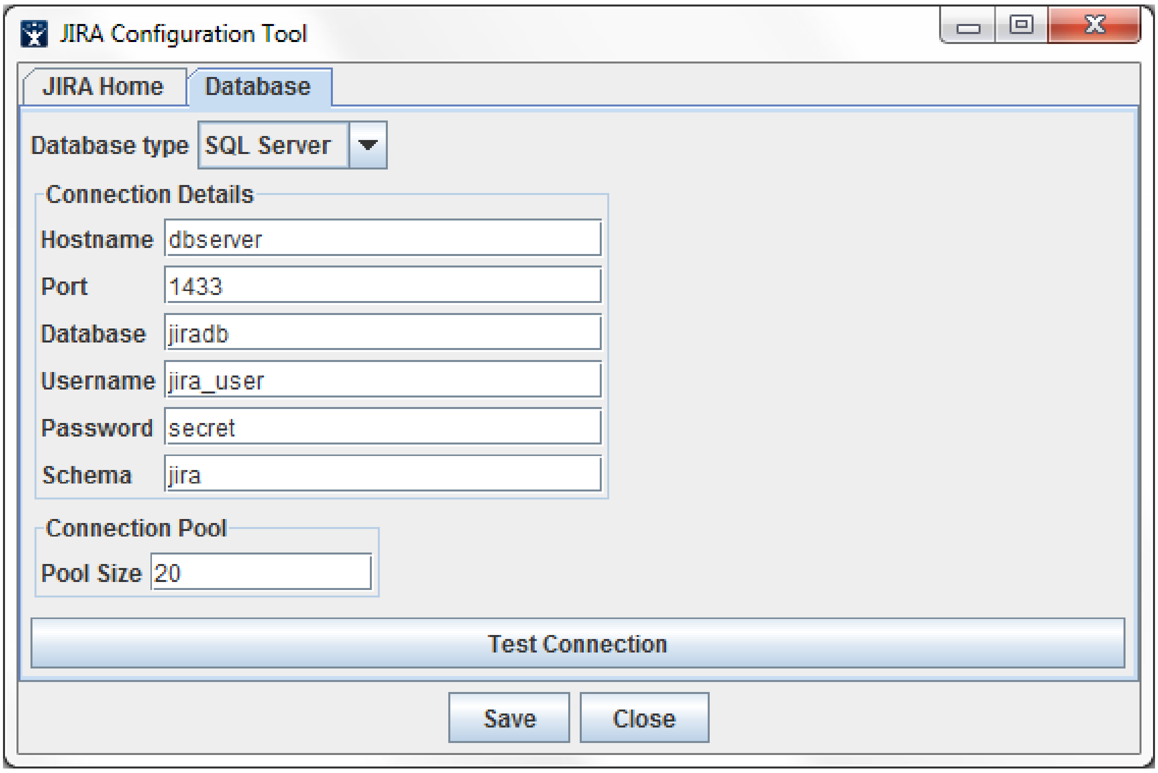
The JIRA Configuration Tool is a GUI tool only available if you are using JIRA Standalone distribution. If you are running a WAR-EAR distribution of JIRA, or have a text-only connection to the JIRA server, you will need to configure the files manually.

The JIRA Configuration Tool requires that Java be installed and configured on your operating system. We recommend using a Java platform supported by JIRA — refer to JIRA Requirements for details.

- **For Windows:** Run `config.bat` in the `bin` subdirectory of the JIRA Installation Directory.
- **For other supported operating systems:** Run `config.sh` in the `bin` subdirectory of the JIRA Installation Directory.

The Configuration Tool will display your current configuration settings if any are already set.

1. Click the '**Database**' tab.
2. From the '**Database type**' drop-down choose 'SQL Server'.



3. Fill in the connection details for your SQL Server database:
   - **Hostname** — The name or IP address of the machine that SQL Server is installed on.
   - **Port** — The TCP/IP port that SQL Server is listening on. You can leave this blank to use the default port.
   - **Database** — The database that you will be connecting to. (the database name set from step 2 of this article)
   - **Username** — The user to connect to SQL Server as.
   - **Password** — The password to use to authenticate with SQL Server.
   - **Schema** — The schema that you want the DB tables created under.
4. After typing in your settings, use the '**Test Connection**' button to test the connection settings. The tool will attempt to connect to the database, and give a message with the results.
5. Click '**Save**' to save your settings when you are done.
6. Restart JIRA in order for your new settings to take effect.

Congratulations — you have finished!

5. Configure the database connection manually

Skip this step if you used the JIRA Configuration Tool (see above).

5.1 Configure your application server to connect to SQL Server

1. Edit the server configuration file and customise the `username` , `password` , `driverClassName` and `url` parameters for the Datasource, as shown in the code sample below.
   - If you are using JIRA Standalone, the server configuration file that you need to edit is **`conf/server.xml`** .
   - If you are using JIRA WAR/EAR, edit the appropriate file on your application server, e.g. for Tomcat, edit **`conf/Catalina/localhost/jira.xml`** .

```
<Server port="8005" shutdown="SHUTDOWN">

  <Service name="Catalina">

    <Connector port="8080"
      maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
      enableLookups="false" redirectPort="8443" acceptCount="100"
      connectionTimeout="20000" disableUploadTimeout="true" />

    <Engine name="Catalina" defaultHost="localhost">
      <Host name="localhost" appBase="webapps" unpackWARs="true" autoDeploy="true">

        <Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
          <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            username="[enter db username]"
            password="[enter db password]"
            driverClassName="net.sourceforge.jtds.jdbc.Driver"
            url="jdbc:jtds:sqlserver://localhost:1433/jiradb"
            maxActive="20"
            [ if maxActive is not set it uses the default number of the connections (8), which may
be too little and can cause performance issues ]
            [ delete the minEvictableIdleTimeMillis and timeBetweenEvictionRunsMillis params here
]
            />

          <Resource name="UserTransaction" auth="Container"
type="javax.transaction.UserTransaction"
            factory="org.objectweb.jotm.UserTransactionFactory" jotm.timeout="60"/>
          <Manager className="org.apache.catalina.session.PersistentManager"
saveOnRestart="false"/>
        </Context>

      </Host>
    </Engine>
  </Service>
</Server>
```

If you have a named instance, your string may look like url="jdbc:jtds:sqlserver://localhost:1433/jiradb;instance=instance_name"

If you can't find this section at all, you've probably got the wrong file — search for mentions of 'jira' in the files under `conf/` .

If you are using JIRA Standalone, you will also need to edit `conf/server.xml` , and delete the **`minEvictableIdleTimeMillis`** and **`timeBetweenEvictionRunsMillis`** attributes. These attributes are only needed for HSQL, and will degrade performance if they are not removed.

5.2 Configure the JIRA Entity Engine

1. #* Edit the JIRA Entity Engine configuration file and change the `field-type-name` attribute to **`mssql`**.
    - If you are using JIRA Standalone, the JIRA Entity Engine configuration file that you need to edit is **`atlassian-jira/WEB-INF/classes/entityengine.xml`** .
    - If you are using JIRA WAR/EAR, the JIRA Entity Engine configuration file that you need to edit is **`edit-webapp/WEB-INF/classes/entityengine.xml`** . If you forget to do to make this change and start JIRA, it may create database tables incorrectly. See this page if this happens to you.
2. Change **`schema-name="PUBLIC"`** to the name of the schema associated with the database (i.e. the schema you created in step 1.3 above), e.g. **`schema-name="jira"`** . Note that the schema must exist in the database before you perform this step.

```
<!-- DATASOURCE - You will need to update this tag for your installation.

-->
  <datasource name="defaultDS" field-type-name="mssql"
      schema-name="jira"
      helper-class="org.ofbiz.core.entity.GenericHelperDAO"
    check-on-start="true"
    use-foreign-keys="false"
    ...
```

> If you are using JIRA WAR/EAR, your application server may require other changes to `entityengine.xml` (e.g. to customise the `jndi-jdbc` tag).

5.3 Next steps

You should now have an application server configured to connect to a database, and JIRA configured to use the correct database type. The next step is to start it up!

- If you are using JIRA Standalone, start it up and watch the logs for any errors.
- If you are using JIRA WAR/EAR, rebuild and redeploy the webapp in your application server.
  Once you have the JIRA server running, you can try accessing the JIRA application in your browser.

Installation notes

Please see JIRA and MS SQL Server 2008.

Connecting JIRA to Oracle

Full Size

These instructions will help you connect JIRA to an Oracle 10g or 11g database. Oracle 9i is no longer a supported database for use with JIRA and the 11.2.x drivers from Oracle do not support 9i.

On this page:

- 1. Before you begin
  - 1.1 Check the compatibility of your Oracle server
  - 1.2 Export your existing JIRA data
  - 1.3 Shut down JIRA
- 2. Configure Oracle
- 3. Copy the Oracle driver to your application server
- 4. Use the JIRA Configuration Tool
- 5. Configure the database connection manually
  - 5.1 Configure your application server to connect to Oracle
    - Tomcat (or JIRA Standalone)
    - JIRA WAR/EAR distribution
  - 5.2 Configure the JIRA Entity Engine
  - 5.3 Next steps
- Installation notes

1. Before you begin

1.1 Check the compatibility of your Oracle server

Please note that a number of the Oracle server versions cannot be used with JIRA or are inherently unstable. The known issues with Oracle servers are as follows:

- We **recommend** that you **avoid** using version 10.2.0.3 of the Oracle server. Oracle server version 10.2.0.3 has been noted to produce occurrences of error ORA-01461. Oracle metalink Note:461670.1 has further details on this Oracle server issue (note, you will need an Oracle support account to view this document). JIRA customers with this problem have reported that upgrading to Oracle server version 10.2.0.4 resolves the issue.

1.2 Export your existing JIRA data

If you are already using JIRA, create an export of your data as an XML backup. You will then be able to transfer data from your old database to your new database, as described in Switching databases.

1.3 Shut down JIRA

2. Configure Oracle

1. Ensure that you have a database instance available for JIRA (either create a new one or use an existing one). The Oracle database must be created with database character set **UTF8**.
   To check your current character set, run the following SQL as a user with system privileges:

   ```
   SELECT value$ FROM sys.props$ WHERE name = 'NLS_CHARACTERSET'
   ```

2. Within that database instance, create a user which JIRA will connect as (e.g. **`jirauser`**).
   When you create a user in Oracle, Oracle will create a 'schema' automatically.
   When you create a user it must be specified the tablespace for the table objects.

```
create user <user> identified by <user_pass> default tablespace <tablespace_name> quota
unlimited on <tablespace_name>;
```

3. Ensure that the user has the following permissions:

```
grant connect to <user>;
grant create table to <user>;
```

3. Copy the Oracle driver to your application server

Skip this step if you are using JIRA Standalone, as JIRA Standalone includes the driver.

1. Download the Oracle JDBC driver (from Oracle's site).
2. Add the appropriate Oracle JDBC driver jar (**`ojdbc5.jar`** for JDK 1.5, **`ojdbc6.jar`** for JDK 1.6) to the `lib/` directory.

Please note that a number of the Oracle driver versions cannot be used with JIRA or are inherently unstable. The known issues with Oracle drivers are as follows:

- We **recommend** that you use the 11.2.x version of the driver for all versions of Oracle (it is backwards compatible). Many other versions of the driver have been noted to have problems, such as:
  - Version 10.2.0.3.0 of the 10g Release 2 JDBC driver has been noted to produce occurrences of error ORA-01461. Oracle metalink Note:461670.1 has further details on this Oracle server issue (note, you will need an Oracle support account to view this document).
  - Version 10.2.0.1.0 of the 10g Release 2 JDBC driver hangs with some databases.
  - The 10g Release 1 JDBC driver (10.1.0.4) does not hang, but throws ArrayIndexOutOfBoundsExceptions.

4. Use the JIRA Configuration Tool

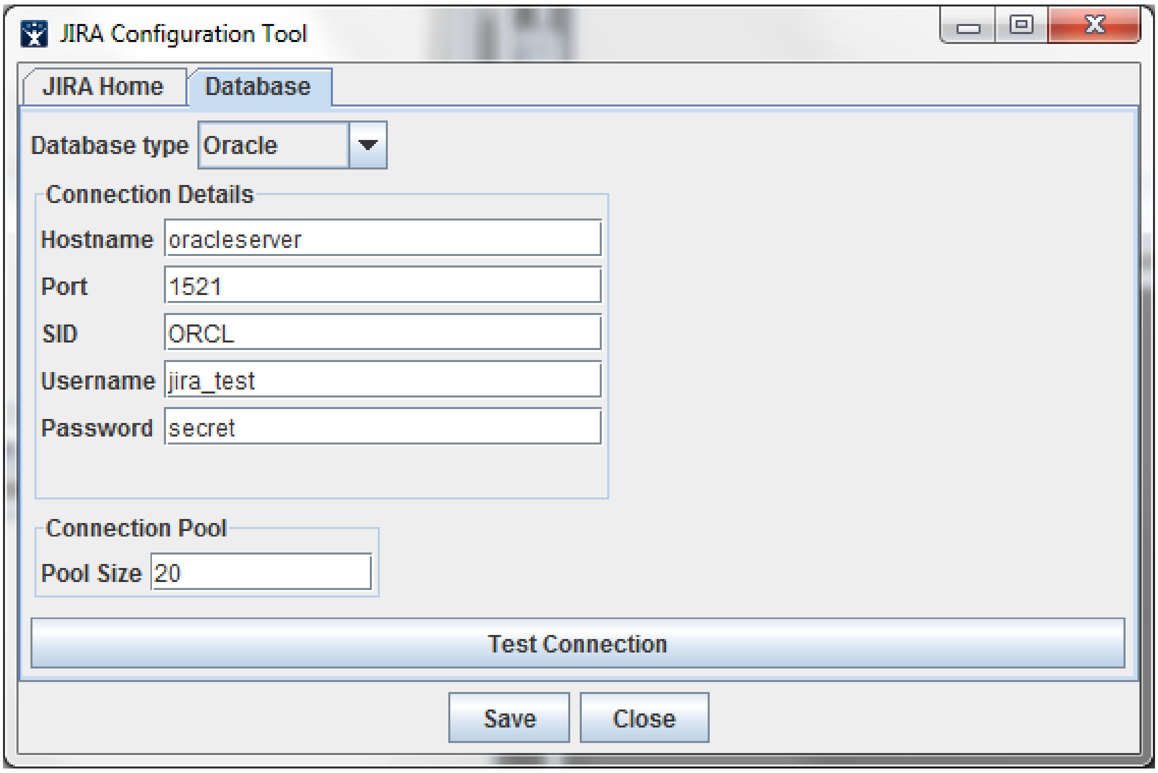
The JIRA Configuration Tool is a GUI tool only available if you are using JIRA Standalone distribution. If you are running a WAR-EAR distribution of JIRA, or have a text-only connection to the JIRA server, you will need to configure the files manually.

The JIRA Configuration Tool requires that Java be installed and configured on your operating system. We recommend using a Java platform supported by JIRA — refer to JIRA Requirements for details.

- **For Windows:** Run `config.bat` in the `bin` subdirectory of the JIRA Installation Directory.
- **For other supported operating systems:** Run `config.sh` in the `bin` subdirectory of the JIRA Installation Directory.

The Configuration Tool will display your current configuration settings if any are already set.

1. Click the '**Database**' tab.
2. From the '**Database type**' drop-down, choose '**Oracle**'.



3. Fill in the connection details for your Oracle database:
    - **Hostname** — The name or IP address of the machine that the Oracle DB is installed on.
    - **Port** — The TCP/IP port that the Oracle server is listening on. The default port number for Oracle is '1521'.
    - **SID** — This is the Oracle 'System Identifier'. The default value for most Oracle servers is 'ORCL'. If you are using the Oracle Express Edition, this will be 'XE'.
    - **Username** — The user which JIRA will use to connect to the Oracle server.
    - **Password** — The password which JIRA will use to authenticate with the Oracle server.
4. After typing in your settings, use the '**Test Connection**' button to test the connection settings. The tool will attempt to connect to the database, and give a message with the results:
5. Click '**Save**' to save your settings when you are done.
6. Restart JIRA in order for your new settings to take effect.

Congratulations — you have finished!

5. Configure the database connection manually

Skip this step if you used the JIRA Configuration Tool (see above).

5.1 Configure your application server to connect to Oracle

Tomcat (or JIRA Standalone)

In an editor, open **`conf/server.xml`** (JIRA Standalone) or **`conf/Catalina/localhost/jira.xml`** (regular Tomcat). Locate the section:

```
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
username="sa"
password=""
driverClassName="org.hsqldb.jdbcDriver"
url="jdbc:hsqldb:${catalina.home}/database/jiradb"
minEvictableIdleTimeMillis="4000"
timeBetweenEvictionRunsMillis="5000"
maxActive="20" />
```

(Note: if you can't find a section like this at all, you've probably got the wrong file. Search for mentions of 'jira' in the files under `conf/`).

Replace this section with the following:

```
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
username="<username>"
password="<password>"
driverClassName="oracle.jdbc.OracleDriver"
url="jdbc:oracle:thin:@<hostname>:<port number>:<SID>"
connectionProperties="SetBigStringTryClob=true"
maxActive="20"/>
```

Customise the username, password, database server hostname, port number and SID (Oracle 'System Identifier').

If you were previously using hsqldb make sure you have *removed* have the `minEvictableIdleTimeMillis` and `timeBetweenEvictionRunsMillis` attributes. They will slow JIRA down if present.

JIRA WAR/EAR distribution

If you are deploying JIRA on another application server, you will need to build a JIRA Webapp from the WAR/EAR distribution. Refer primarily to the application server setup guides for details of configuring your application server.

5.2 Configure the JIRA Entity Engine

1. Edit **`atlassian-jira/WEB-INF/classes/entityengine.xml`** (if you are using JIRA Standalone) or **`edit-webapp/WEB-INF/classes/entityengine.xml`** (JIRA WAR/EAR), and make the following changes:
    - Change the `field-type-name` attribute to **`oracle10g`**. If you forget to do this and start JIRA, it may create database tables incorrectly. See this page if this happens to you.
    - Remove the `schema-name="PUBLIC"` attribute.

5.3 Next steps

You should now have an application server configured to connect to a database, and JIRA configured to use the correct database type. If you are using JIRA Standalone, start it up and watch the logs for any errors. If you are using the JIRA WAR/EAR distribution, rebuild and redeploy the webapp in your application server.

Installation notes

Please see JIRA and Oracle.

Connecting JIRA to HSQLDB

Full Size

Please note: although HSQLDB is bundled with JIRA Standalone we do not recommend it for production use. See Connecting JIRA to a Database for more information. Please consider using one of the recommended databases instead.

On this page:

- 1. Before you begin
- 2. Copy the HSQLDB driver to your application server
- 3. Use the JIRA Configuration Tool
- 4. Configure the database connection manually
    - 4.1 Configure your application server to connect to HSQLDB
    - 4.2 Configure the JIRA Entity Engine
    - 4.3 Next steps
- Installation notes

1. Before you begin

If you are already using JIRA, create an export of your data as an XML backup. You will then be able to transfer data from your old database to your new database, as described in Switching databases.

2. Copy the HSQLDB driver to your application server

Skip this step if you are using JIRA Standalone, as JIRA Standalone includes the driver.

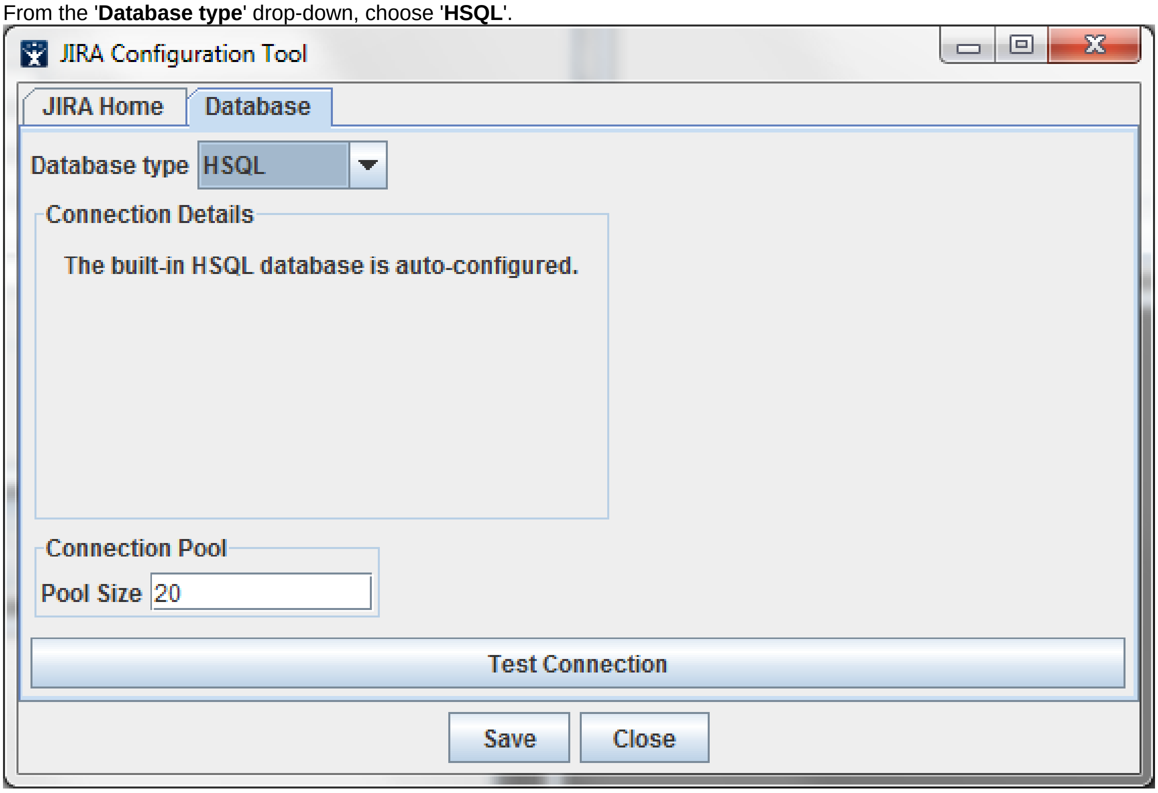
1. Download the HSQLDB JDBC driver — hsqldb-1.8.0.5.jar for JIRA 3.7+, or hsqldb-1.7.1-patched.jar for JIRA 3.6.5 and earlier. We **strongly recommend** upgrading to 3.7 if you wish to use hsqldb, as hsqldb 1.7.x is prone to data corruption.
2. Add the HSQLDB JDBC driver jar to the `lib/` directory.

3. Use the JIRA Configuration Tool

> The JIRA Configuration Tool is a GUI tool only available if you are using JIRA Standalone distribution. If you are running a WAR-EAR distribution of JIRA, or have a text-only connection to the JIRA server, you will need to configure the files manually.
>
> The JIRA Configuration Tool requires that Java be installed and configured on your operating system. We recommend using a Java platform supported by JIRA — refer to JIRA Requirements for details.

- **For Windows:** Run `config.bat` in the `bin` subdirectory of the JIRA Installation Directory.
- **For other supported operating systems:** Run `config.sh` in the `bin` subdirectory of the JIRA Installation Directory.

The Configuration Tool will display your current configuration settings if any are already set.

1. Click the '**Database**' tab.
2. From the '**Database type**' drop-down, choose '**HSQL**'.


This is a built-in database and requires no further configuration.
3. Click '**Save**' to save your settings when you are done.
4. Restart JIRA in order for your new settings to take effect.

Congratulations — you have finished!

4. Configure the database connection manually

> Skip this step if you used the JIRA Configuration Tool (see above).

4.1 Configure your application server to connect to HSQLDB

1. Edit **`conf/server.xml`** (if you are using JIRA Standalone) and customise the `username`, `password`, `driverClassName`, `url`, `minEvictableIdleTimeMillis` and `timeBetweenEvictionRunsMillis` parameters for the Datasource. (If you are using JIRA WAR/EAR, edit the appropriate file on your application server; e.g. for Tomcat, edit **`conf/Catalina/localhost/jira.xml`** .)

```
<Server port="8005" shutdown="SHUTDOWN">

  <Service name="Catalina">

    <Connector port="8080"
      maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
      enableLookups="false" redirectPort="8443" acceptCount="100"
      connectionTimeout="20000" disableUploadTimeout="true" />

    <Engine name="Catalina" defaultHost="localhost">
      <Host name="localhost" appBase="webapps" unpackWARs="true" autoDeploy="true">

        <Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
          <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
            username="sa"
            password=""
            driverClassName="org.hsqldb.jdbcDriver"
            url="jdbc:hsqldb:/path/to/jira/database/jiradb"
            minEvictableIdleTimeMillis="4000"
            timeBetweenEvictionRunsMillis="5000"
            maxActive="20"
            />

          <Resource name="UserTransaction" auth="Container"
type="javax.transaction.UserTransaction"
            factory="org.objectweb.jotm.UserTransactionFactory" jotm.timeout="60"/>
          <Manager className="org.apache.catalina.session.PersistentManager"
saveOnRestart="false"/>
        </Context>

      </Host>
    </Engine>
  </Service>
</Server>
```

(Note: if you can't find this section at all, you've probably got the wrong file - search for mentions of 'jira' in the files under `conf/`.)

> In Tomcat, use **'`jdbc:hsqldb:${catalina.home}/database/jiradb`'** and **'`${catalina.home}`'** will be replaced with the JIRA path at runtime.

4.2 Configure the JIRA Entity Engine

1. Edit **`atlassian-jira/WEB-INF/classes/entityengine.xml`** (if you are using JIRA Standalone) or **`edit-webapp/WEB-INF/classes/entityengine.xml`** (JIRA WAR/EAR), and change the `field-type-name` attribute to **`hsql`.** (If you forget to do this and start JIRA, it may create database tables incorrectly. See this page if this happens to you).

```
<!-- DATASOURCE - You will need to update this tag for your installation.

-->
  <datasource name="defaultDS" field-type-name="hsql"
      helper-class="org.ofbiz.core.entity.GenericHelperDAO"
    check-on-start="true"
    use-foreign-keys="false"
    ...
```

> If you are using JIRA WAR/EAR, your application server may require other changes to `entityengine.xml` (e.g. to customise the `jndi-jdbc` tag).

4.3 Next steps

You should now have an application server configured to connect to a database, and JIRA configured to use the correct database type. If you are using JIRA Standalone, start it up and watch the logs for any errors. If you are using the JIRA WAR/EAR distribution, rebuild and redeploy the webapp in your application server.

Installation notes

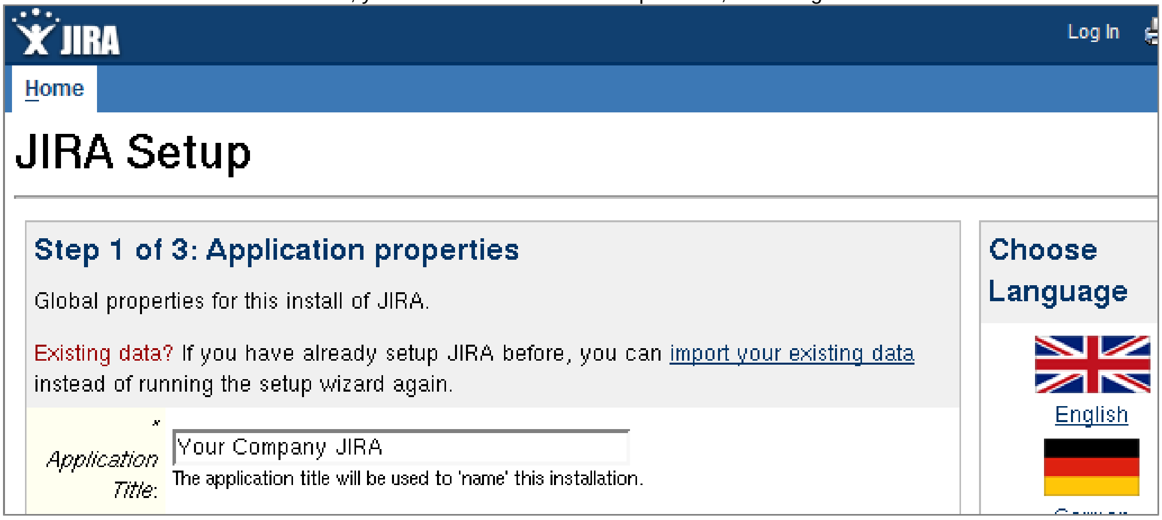
Please see JIRA and HSQL.

Switching Databases

JIRA data can be migrated between databases or database servers.

Migrating to a new Database

1. Create an export of your data as an XML backup (see Backing Up Data). Please note that JIRA's XML backup utility does not back up attachments (if you have attachments enabled). You will need to back up your attachments separately.
2. Configure your JIRA instance to use the new database, following the steps for your specific database — see Connecting JIRA to a Database for details. When restarted, you should see the JIRA setup screen, indicating a blank database.



3. On the setup page, click `Import your existing data` and restore your data from the XML backup (NB: use the default directory for your index).
4. Once installed, make sure the index, attachment and backup paths are correct. In particular, if you are running more than one JIRA instance on the same server, ensure that each instance uses different paths.

Migrating a Database to a New Server

If you're upgrading to a new version, see Upgrading JIRA. Otherwise, you can use native database tools to migrate to the new database server. After the database is populated, run $JIRA_INSTALL/bin/config.sh (Linux) or %JIRA_INSTALL%/bin/config.bat (Windows). This opens a GUI tool for changing the database URL settings.

If you don't have GUI access or would prefer to do it via the command line, the file is $JIRA_INSTALL/conf/server.xml. Have a look at Connecting JIRA to a Database.

Running the Setup Wizard

Full Size

After you have installed JIRA, and accessed its URL (eg. http://localhost:8080 or http://localhost:8080/jira) for the first time, you will be presented with a brief setup wizard to configure JIRA.

Step 1 of 3: Application Properties

The first page of the wizard is shown below. On this page you can set some of the JIRA configuration settings, and enter your license key.

We **strongly** recommend that you specify a backup path as this will allow JIRA to periodically backup the database.

JIRA configuration settings

For more details on the settings and what they mean, see Configuring JIRA.

The first page of the wizard will also prompt you to accept locations for the following:

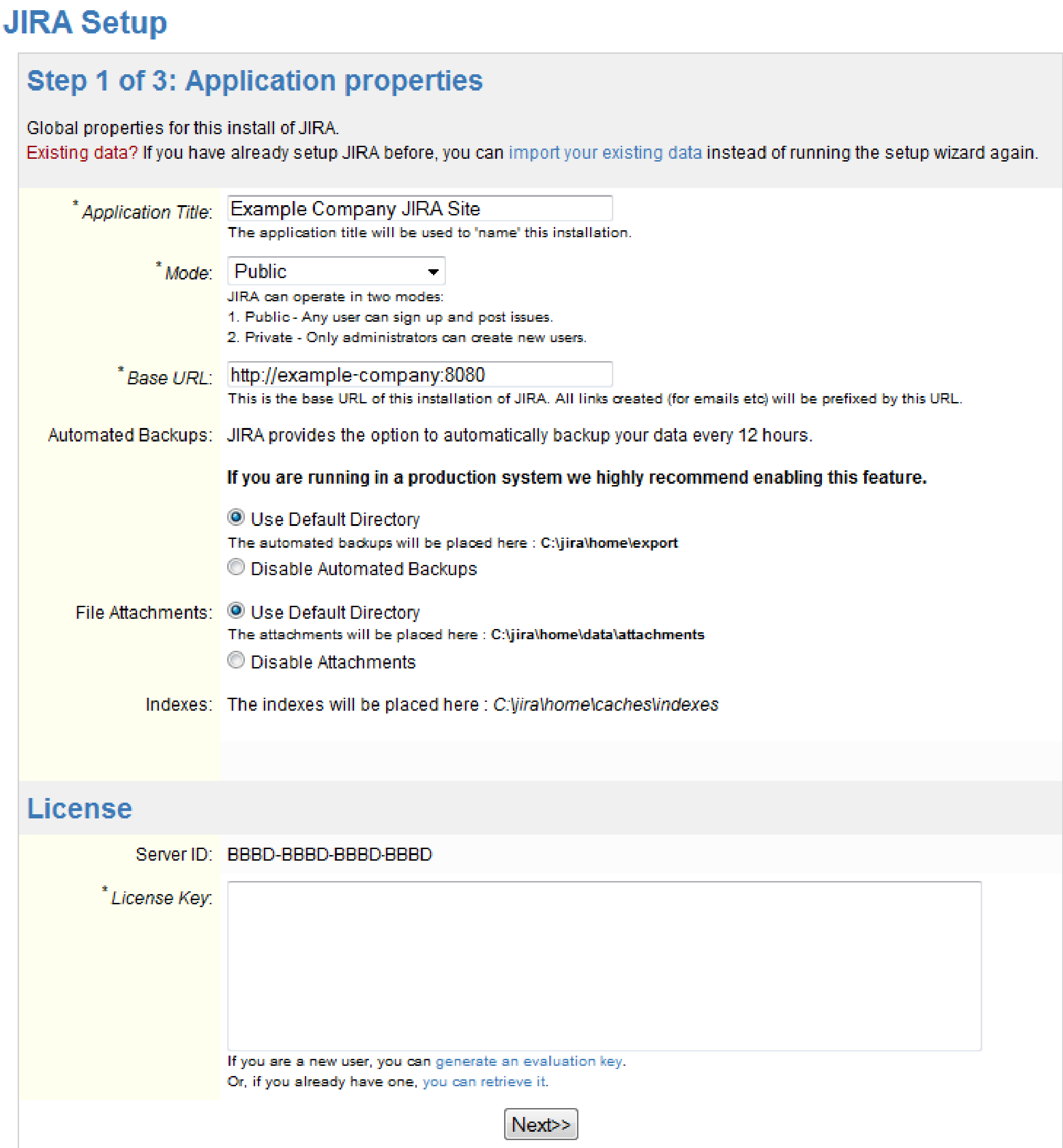
- **Automated Backups** — the default location for your automated backups is the `exports` subdirectory of your JIRA Home Directory. For more information about this feature, please read Automating JIRA Backups.
- **File Attachments** — the default location for your file attachments is the `data/attachments` subdirectory of your JIRA Home Directory. For more information about this feature, please read Configuring File Attachments.
- **Indexes** — the default location for your indexes is the `caches/indexes` subdirectory of your JIRA Home Directory. For more information about this feature, please read Search Indexing.

For security reasons, from JIRA version 4.2, you can no longer specify custom directories for your **Automated Backups**, **File Attachments** and **Indexes**.

Evaluation license key

You are required to enter a valid license key before you can use JIRA. You can obtain an evaluation license key which will allow JIRA to run unrestricted for 30 days. To use your existing license key or obtain a new license key, follow the steps below:

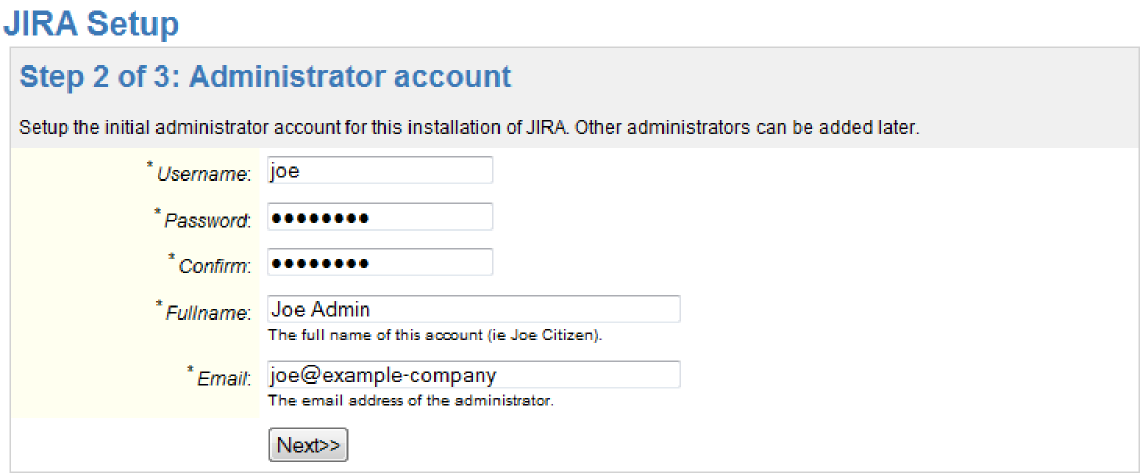
1. If you are a new user, you will need to create an account to generate an evaluation license key. Otherwise, log in to the Atlassian website and navigate to the 'Licenses' page.
2. Once you have created an account or logged in with an existing account, the 'JIRA - Licenses' page will display with a list of your existing JIRA licenses. If you do not have any JIRA licenses, generate one by clicking on the 'Generate evaluation license' link for JIRA. A new evaluation license will be generated and displayed on the page.
3. Click on the 'View' link to view the license key of the evaluation license that you wish to use. Copy the license key to your clipboard and paste it into the 'License Key' field of the Setup Wizard.



Step 2 of 3: Administrator Account

After completing the first page, the second page of the wizard sets up an administrator account.

Once this initial administrator account is created, that administrator can then create other administrators.

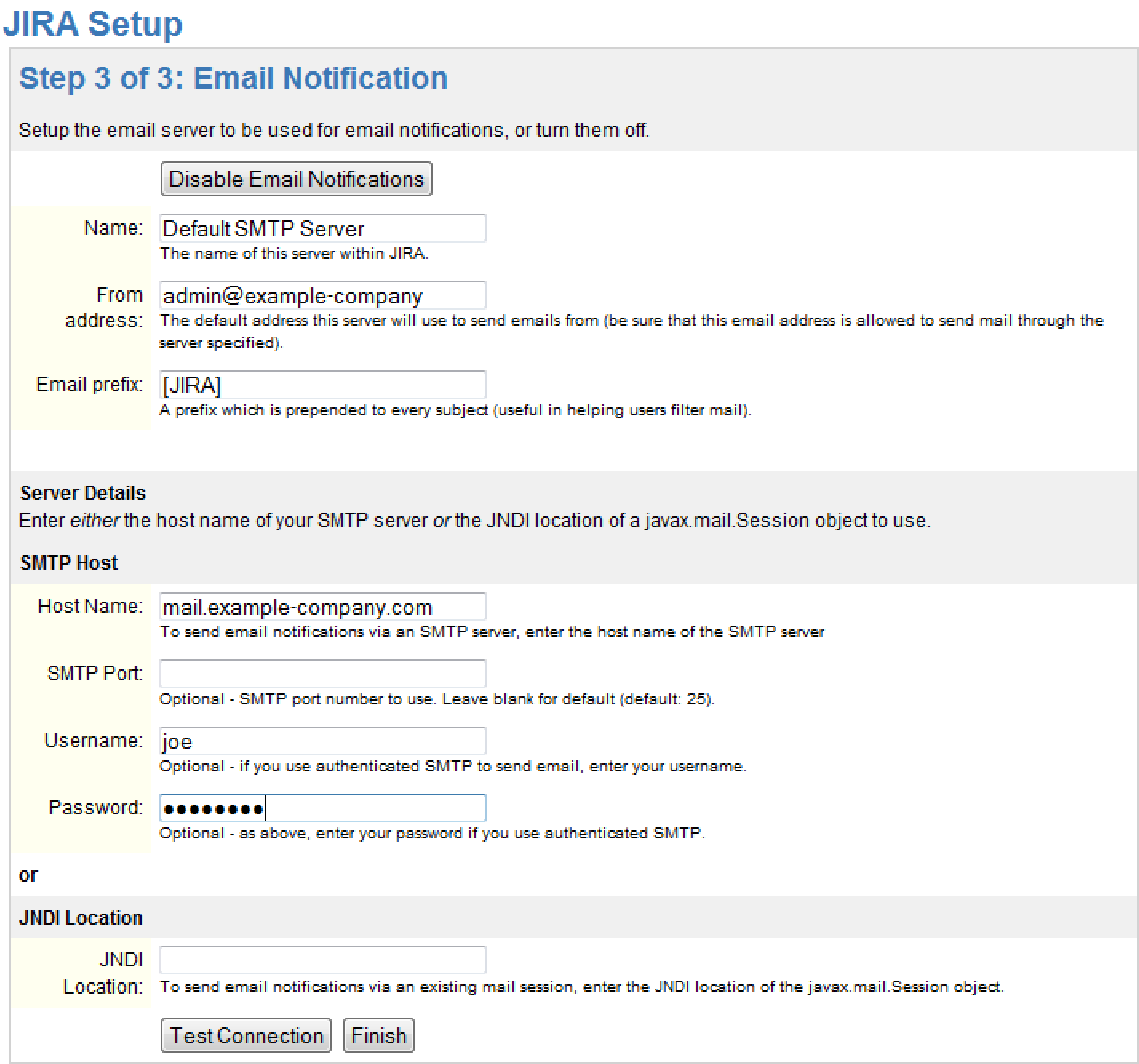


Step 3 of 3: Email Notification

The last page of the setup wizard allows you to configure the outgoing emails from JIRA.

To disable email notifications (you can always enable them later), just click the **Disable Email Notifications** button.

For the outgoing mail server choice, you must either specify the JNDI location of a `javax.mail.Session` object (usually provided by your application server) or specify the location of an SMTP server.



You're done!

Once you complete step 3, JIRA should be set up and ready for use. For information on getting started with JIRA, please refer to the following guides:

- JIRA User's Guide
- JIRA Administrator's Guide

Also note that you can click the help icon (yellow question-mark) in the upper right-hand corner at any time for further information.

Next Steps - Adding Users

Full Size

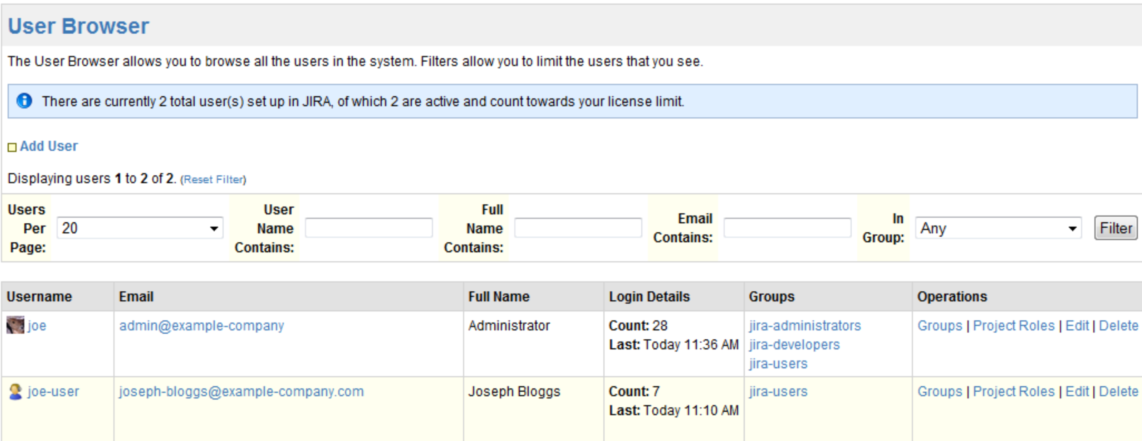
On this page:

- Viewing Users
- Adding a User
- Assigning a User to a Group
- Assigning a User to a Project Role
- Changing a User's Name or Email Address
- Changing a User's Password
- Adding a Property to a User
- Deactivating a User
- Deleting a User
- Notes

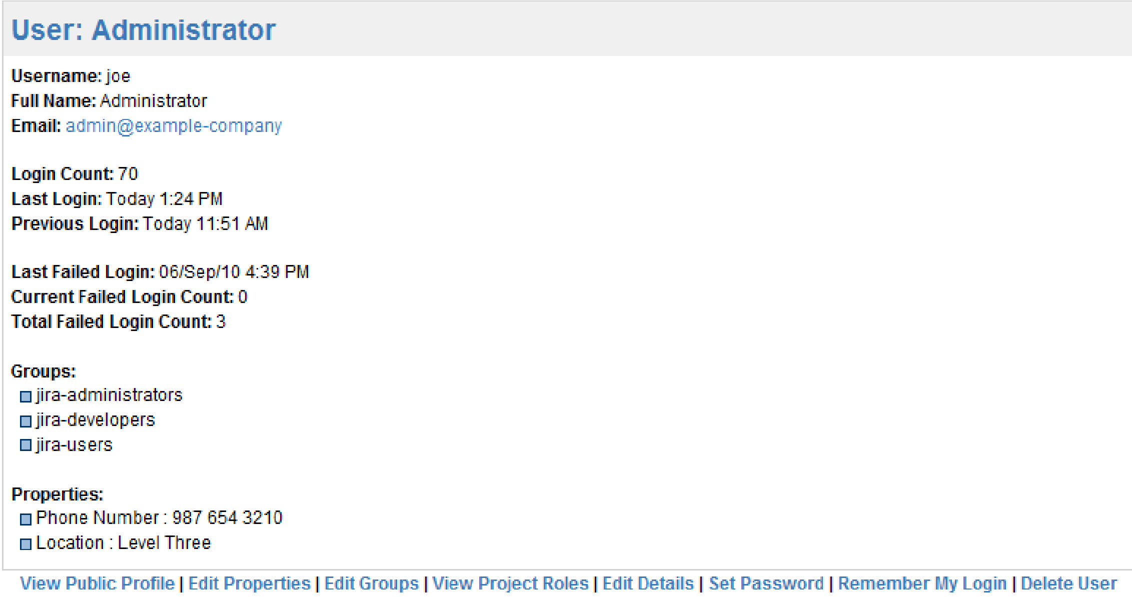
Viewing Users

To view a list of JIRA users:

1. Log in as a user with the **JIRA Administrators** global permission.
2. Bring up the administration page by clicking either the '**Administration**' link on the top bar or the title of the Administration box on the dashboard.
3. Select **User Browser** from the **Users, Groups & Roles** section of the administration menu. This will display the **User Browser** screen:



4. To restrict the list of users shown in the **User Browser**, use the Filter form at the top of the User Browser. Specifying (part of) the user's email and/or group, then clicking the '**Filter**' button, will reduce the list to only those users who match those criteria.
5. To view details and login information about a user in the list, click their **Username** or **Email** Address.



Adding a User

1. Open the **User Browser** (see Viewing Users above) and click the '**Add User**' link. This will display the **Create New User** form.
2. Enter the **Username** (note that a user's **Username** cannot be changed once the user is created), **Password**, **Full Name** and **Email Address**.
3. Optionally, tick the **Send Password Email** box to send the user an email containing:
   - their login name; and
   - a link via which to set their password (this link is valid for 24 hours).
4. Click the **Create** button.

> Users can also be created via:
>
> - **Signup** — see Enabling Public Signup.
> - **Email** — e.g. you can use the CreateIssueHandler (see Services) to have JIRA create a user based on the sender's email address.

> If you have a user limited license (e.g. starter license) and have reached your user limit, any further users added will not have permission to log in to JIRA.

Assigning a User to a Group

When a user is created, they will be added to any groups that are set up to have new users automatically added to them.

To change a user's group membership:

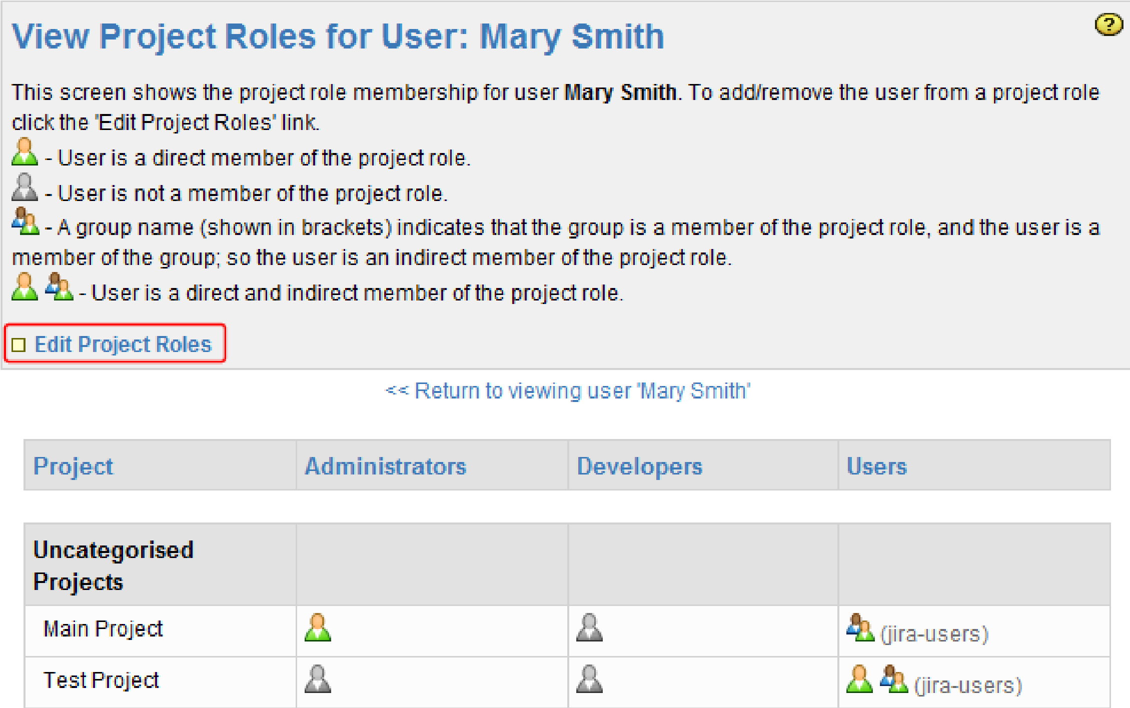
1. Locate the user in the **User Browser** (see Viewing Users above) and click the **Groups** link in the **Operations** column.
2. This will display two lists; the one on the left shows all available groups, and the one on the right shows all groups to which the user currently belongs. Use the **Join** and **Leave** buttons to add the user to or remove them from your selected group.

> If you have a user limited license (e.g. starter license) and have reached your user limit, you will not be able to assign any further users to groups with login permissions (i.e. jira-users permission) without first reducing the number of users with login permissions.

Assigning a User to a Project Role

Assigning a user to a project role enables them to fulfil a particular function in a particular project.

To view a user's project role membership, locate the user in the **User Browser** (see Viewing Users above) and click the **Project Roles** link in the **Operations** column. This will display a table showing all the projects and project roles that exist in JIRA, and the user's current project role membership for each project:



e.g. this screenshot shows that, for the 'Main Project' project:

- Mary is a member of the 'Administrators' project role.
- Mary is not a member of the 'Developers' project role.
- Mary is indirectly a member of the 'Users' project role, through being a member of the 'jira-users' group.
  (Also note that, for the 'Test Project' project, May is both a direct *and* an indirect member of the 'Users' project role.)

Click the **Edit Project Roles** button. The check boxes will then be available for you to select (to add the user to a project role) or clear (to remove the user from a project role).

Changing a User's Name or Email Address

1. Locate the user in the **User Browser** (see Viewing Users above) and click their **Edit** link in the **Operations** column. This displays a form where you can change the user's Full Name or Email Address.
2. Click **Update** to confirm the change.

Changing a User's Password

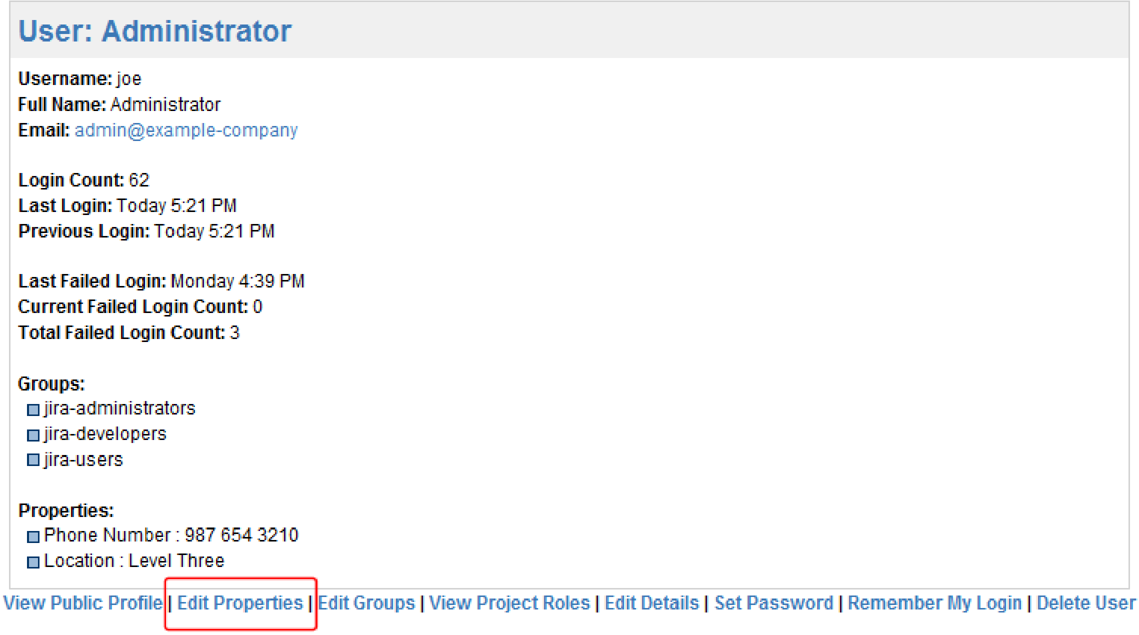
1. Locate the user in the **User Browser** (see Viewing Users above) and click their **Username**. This displays the user's details, below which are several links.
2. Click the **Set Password** link. This displays the **Set Password** screen.
3. Enter and confirm the new password.
4. Click the **Update** button.

Adding a Property to a User

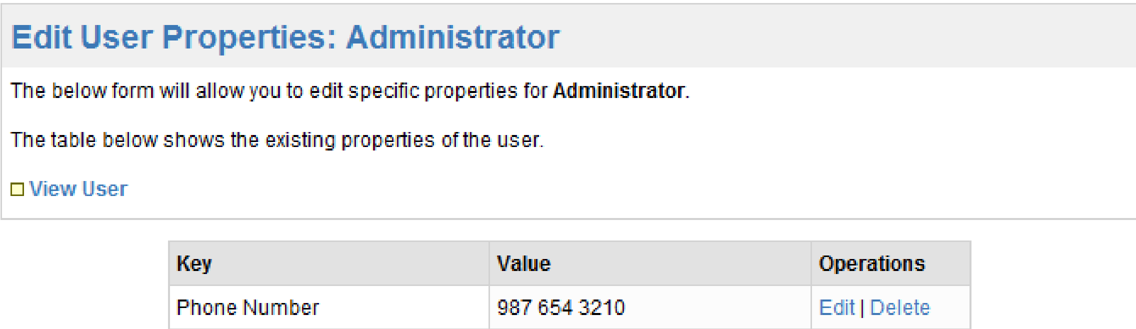
A **'Property'** is an extra piece of information that you can store regarding a user. A Property consists of a **Key** of your choice (eg. 'Phone number', 'Location') plus a corresponding **Value** (eg. '987 654 3210', 'Level Three').

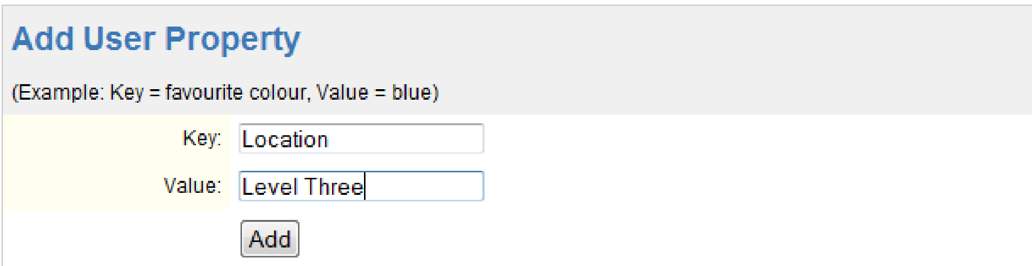
To create a new Property for a user:

1. Locate the user in the **User Browser** (see Viewing Users above) and click their **Username**. This displays the user's details in a box.
2. Click the **Edit Properties** link below this box.



3. This displays the **Edit User Properties** screen, showing any previously-created properties:





4. Enter the new **Key** and its **Value,** then click the **Add** button.

Deactivating a User

Before you deactivate a user, you should:

- **Reassign any open issues assigned to that user**. You will need the '**Assign Issue**' permission to change the assignee for the issues.
- **Make sure the user is not the 'Default Assignee' for any project(s)**. You will need the '**Administer Project**' permission to change the Default Assignee for the project(s).

To deactivate a user account:

1. Remove the user from all groups. Read Managing Groups for more information.
2. Remove the user from all project roles. Read Managing Project Role Membership for more information.

Deactivating the user account will result in the following:

- the user will not count towards your **license limit**.
- **work log entries** associated with the user will remain.
- **filter subscriptions** will continue to be sent to the user — If this is a problem, you can change the user's email address in JIRA to an imaginary address, e.g. `user@example.com`.

There is currently no *"disabled user"* user type in JIRA.

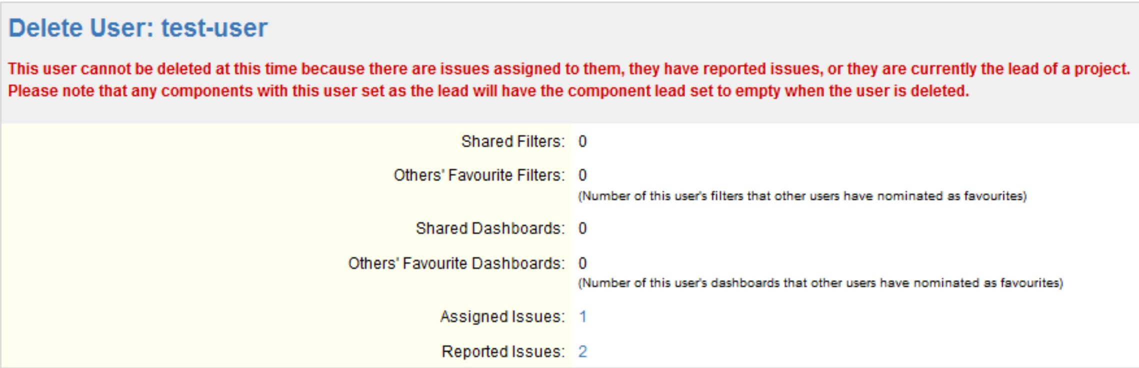
Deleting a User

Rather than deleting a user, we recommend that you **deactivate their account** instead (as described above). Deactivating a user's account will prevent that account from being used and prevent anyone from being able to log in to JIRA using that account. However, it will preserve that user's issues history.

Before you delete a user, you should bulk-edit the issues involved and **change the reporter** to someone else. You will need the **'Modify Reporter'** permission to change the reporter for the issues. You will also need to allow editing of closed issues if some of the issues the user created are closed and you do not wish to reopen them.

To delete a user:

1. Locate the user in the **User Browser** (see Viewing Users above) and click the **Delete** link in the **Operations** column.
2. The confirmation screen that follows will summarise any involvement of that user in the system by showing current issues assigned to and reported by that user, etc. These connections between the user and other parts of the system may prevent the deletion of that user. For example, attempting to delete a user called *test-user* results in the following screen, which prevents deletion due to the presence of one assigned and two reported issues:



   As well as reassigning any issues, you may need to bulk-edit the issues created by the user and change the 'Reporter' to someone else. You'll need the 'Modify Reporter' permission to do this.
3. If there are no issues assigned to, or reported by the user, the confirmation screen will display a **Delete** button; click this to proceed with the deletion.

- Please note that the filters and dashboards of a user will be deleted when the user is deleted, regardless of whether the filters or dashboards are shared with other users.
- Any numbers of issues which have been reported by or assigned to the user you are attempting to delete, are respectively hyperlinked to a list of the individual issues (in the Issue Navigator).

Notes

- If you are using External User Management, you will not be able to create, edit or delete users from within JIRA; but you can still assign users to project roles, and create/edit/delete user properties.
- **Multiple user directories:**

  You may define multiple user directories in JIRA, so that JIRA looks in more than one place for its users and groups. For example, you may use the default JIRA **internal directory** and also connect to an **LDAP** directory server. In such cases, you can define the **directory order** to determine where JIRA looks first when processing users and groups.

  Here is a summary of how the directory order affects the processing:

  - The order of the directories is the order in which they will be searched for users and groups.
  - Changes to users and groups will be made only in the first directory where the application has permission to make changes.

  See Managing Multiple Directories.

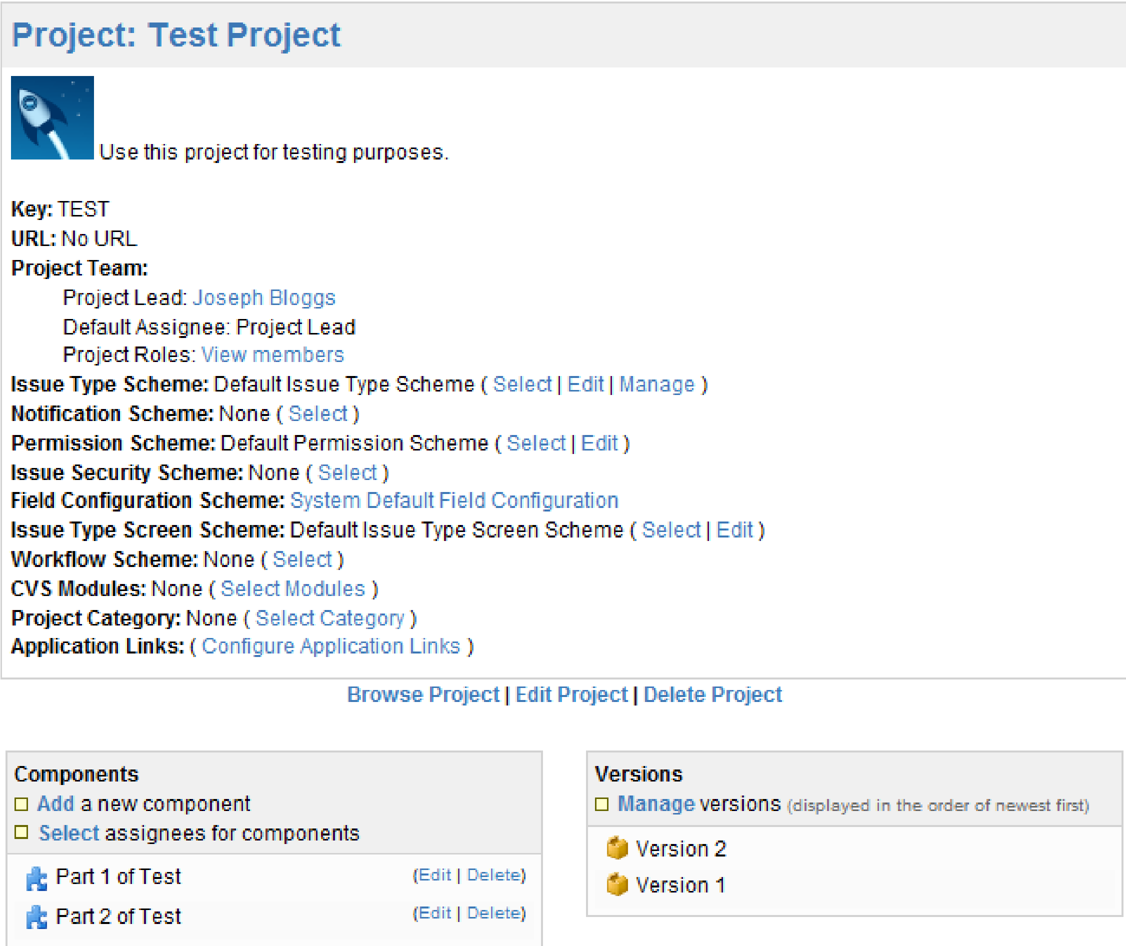
Next Steps - Creating a Project

Full Size

To configure a project in JIRA:

1. Log in as a user with the **'JIRA Administrators'** global permission.
2. Bring up the administration page by clicking either the **'Administration'** link on the top bar or the title of the Administration box on the dashboard.
3. Select an existing project, or click **'Add Project'** to add a project.

Here is what a project looks like once created:



A project's configuration settings are as follows:

- **Avatar** — an image (48x48 pixels) that represents the project. You can either use the default image, i.e.:
  
  or choose a different image. If you prefer not to use an image, simply upload a transparent pixel.
- **Description** — an optional description of this particular project. You can include HTML, but make sure all your tags are closed.

> Please be aware that this is completely unfiltered HTML, therefore it is susceptible to cross site scripting attacks.

- **Key** — a 'key' unique to this project (eg. 'WEB'), which specifies the first few letters of this project's issue keys (e.g. 'WEB-100'). We recommend that you define a key that describes the project and is easy to type (as it prefixes each issue in the project). Please note that the key is shown to users who do not have permission to see the project and cannot be changed once the project exists.
- **URL** — an optional URL associated with this project, eg. pointing to project documentation.
- **Project Team:**
  - **Project Lead** — user fulfilling the role of project leader. Used as the 'Default Assignee' (see below), and potentially elsewhere in JIRA (e.g. in permission schemes, notification schemes, issue security schemes and workflows).
  - **Default Assignee** — the user to whom issues in this project are initially assigned when created. Can be either the 'Project Lead' (above), or, if **Allow unassigned issues** is set to 'On' in JIRA's general configuration, 'Unassigned'. There are also default component assignees.
  - **Project Roles** — members are users/groups who fulfil particular functions for this project. Project roles are used in permission schemes, notification schemes, issue security schemes and workflows.
- **Issue Type Scheme** — the project's issue type scheme determines which issue types apply to this project.
- **Notification Scheme** — the project's notification scheme determines who receives email notifications of changes to issues in this project.
- **Permission Scheme** — the project's permission scheme determines who has permission to view or change issues in this project.
- **Issue Security Scheme** — the project's issue security scheme determines what visibility levels issues in this project can have (see issue-level security).
- **Field Configuration Scheme** — the project's field configuration scheme determines which field configuration applies to issue types

in this project. (A field configuration determines each field's overall visibility, requiredness, formatting (wiki/rich-text or plain) and help-text).
- **Screen Scheme** — the project's screen scheme determines which screens are displayed for different issue operations (view, edit, create);
  or:
  Issue Type Screen Scheme — the project's issue type screen scheme determines which screens are displayed for different issue operations (view, edit, create), for different issue types.
- **Workflow Scheme** — the project's workflow scheme determines which workflows (issue state transitions) apply to issue types in this project.
- **CVS Modules** — configures CVS integration for this project.
- **Mail Configuration** — specifies the 'From' address for emails sent from this project. Only available if an SMTP email server has been configured in JIRA.
- **Project Category** — a logical category to group this project into. Useful for managing multiple related projects. New categories can be created via the 'Project Categories' link in the 'Administration' menu.
- **Application Links** — entities to which this JIRA project has been linked in other applications (via application links). New entity links can be created by clicking the '**Configure Application Links**' link. See Linking your JIRA Project to another Entity for details.

As well as:

- **Components** — logical groups that this project's issues can belong to. See the component management page for details.
- **Versions** — versions defined in the project. See the version management page for details.

A note about Project Administrators

A JIRA project administrator is someone who has the project-specific 'Administer Project' permission, but not necessarily the global 'JIRA Administrator' permission.

A project administrator can:

- Edit the project name ('Test Project' in the screenshot above)
- Edit the project description ('A project for demonstration purposes' in the screenshot above)
- Edit the project avatar image
- Edit the URL
- Edit the Project Lead
- Edit project role membership *
- Configure entities for application links
- Define project components
- Define project versions

Additional Resources

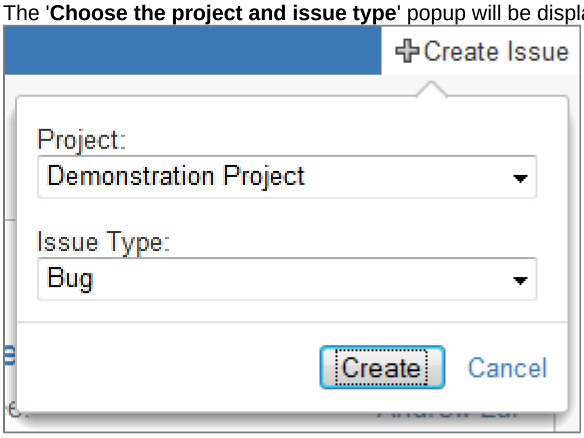
- Adding a Project tutorial video — Watch this short tutorial video to see how a project is added in JIRA. Please note the JIRA version of the tutorial video before watching.

Next Steps - Creating an Issue

Full Size

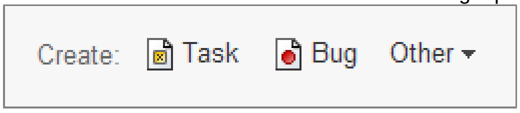
> To create a JIRA issue, you will need to have the 'Create Issue' permission in the relevant project. If you don't have this permission, please contact your JIRA administrator.

To create a new JIRA issue:

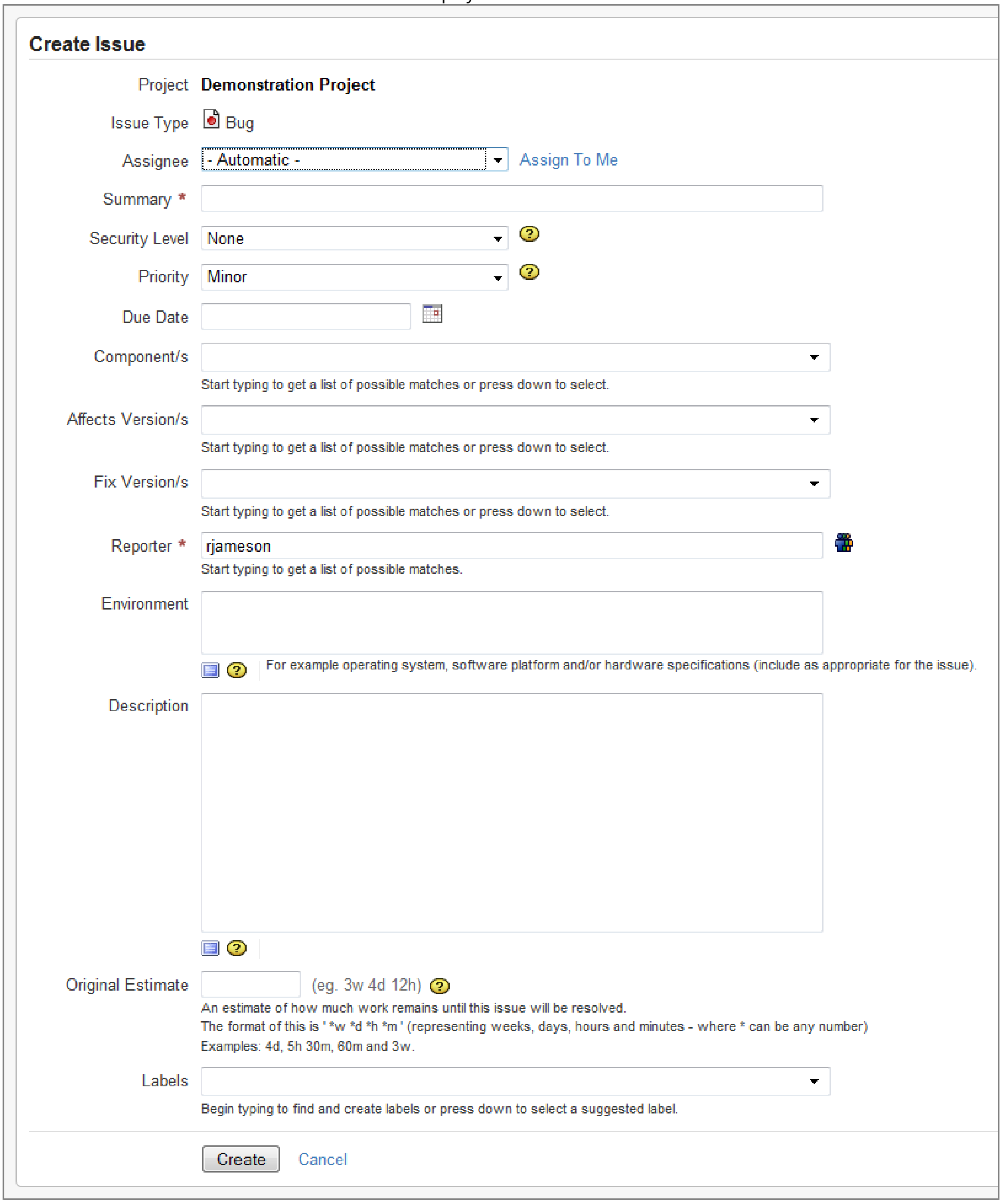
1. Click the '**Create Issue**' link at the top of the screen.
   The '**Choose the project and issue type**' popup will be displayed.
   

   Note that this popup will not be displayed if:
   - There is only one project and only one issue type for that project in your JIRA site.
   - You click '**Create Issue**' while browsing a project, and there is only one issue type for that project.

- You click one of the '**Create**' icons while browsing a project, e.g.:



2. Select the relevant project and issue type, then click the '**Create**' button.
The '**Enter the details of the issue**' screen will be displayed.



Note that this screen may look different if your JIRA administrator has customised it.

3. Type a summary of the issue and complete any other required fields, which are italicised and highlighted by an asterisk.
4. Click the '**Create**' button at the bottom of the page. The new issue will be created and you will see the 'View Issue' screen, showing the issue details that you have provided. You may also receive an email containing details and a link to your new issue.

To see a list of all issues that you have created, which have not yet been resolved, go to your user profile and click the '**Reported & Open**' filter.

With appropriate configuration by your JIRA administrator, it is also possible to create issues via email.

Upgrading JIRA

This document describes the standard, recommended procedure for upgrading to **JIRA 4.3.x *from JIRA version 4.0.0 or later***.

If any of the following points applies to your situation, use the migration procedure to upgrade JIRA instead:

- You are **upgrading from a version of JIRA prior to 4.0.0**.
- You are **changing the location of your index and/or attachments path** for **JIRA 4.3.x**.
- You are **changing the operating system** that will run **JIRA 4.3.x**.
- You are **changing the database system** that will store JIRA's data.

> **Upgrading to JIRA 4.3?**
>
> If so, please review the JIRA 4.3 Release Notes and JIRA 4.3 Upgrade Guide for important information about this version of JIRA.

On this page:

- 1. Before You Start
- 2. Backing Up
  - 2.1 Back up your database
  - 2.2 Back up your JIRA Home directory
  - 2.3 Back up your attachments directory if located outside your JIRA Home directory
  - 2.4 Back up your JIRA Installation directory
- 3. Performing the Upgrade
  - 3.1 Install the new version of JIRA
  - 3.2 Migrate your existing JIRA configurations over to your new JIRA installation
  - 3.3 Connect your new JIRA to your existing database
  - 3.4 Point your new JIRA to your existing JIRA Home directory
  - 3.5 Start your new version of JIRA
- 4. Post Upgrade Checks and Tasks

Please read/perform *all steps and sub-steps* in consecutive order.

1. Before You Start

1. You will need current software maintenance to perform the upgrade. If you are unsure, confirm the following:
   - Your license support period is still valid.
   - If your current license has expired but you have a new license with you, please update your license in JIRA.
     If you forget to do this and your license has expired, you will receive errors during the upgrade process. Refer to the instructions on upgrading beyond current license period.
2. Read the release notes and upgrade guide for the version of JIRA you are upgrading to. The upgrade guide (in particular) contains important information that may be relevant to your JIRA installation.
   - If you plan to skip a few JIRA versions for your next JIRA upgrade, **we strongly recommend** that you read the upgrade guides for all major versions between your current version and the version to which you are upgrading. Refer to Important Version-Specific Upgrade Guides for quick links to these guides.
3. Confirm that your Java platform, operating system, application server, database and hardware still comply with the requirements for **JIRA 4.3.x**. Newer versions of JIRA may have different requirements and supported platforms to previous JIRA versions.
   The End of Support Announcements for JIRA page also has important information regarding platform support for future versions of JIRA.
4. Check for any known issues in the JIRA Knowledge Base.
5. If you have installed any additional JIRA plugins (i.e. not included with JIRA), please verify that they will be compatible with the version of JIRA you are upgrading to. You can find a plugin's compatibility information from the the plugin's home page on the Atlassian Plugin Exchange. Once you have confirmed the availability of compatible versions, you should upgrade your plugins after successfully upgrading JIRA. This can be done via the '**Plugin Repository**' in your **Administration Console**.
6. **Test first!** — We strongly recommend performing your upgrade in a test environment first. Do not upgrade your production JIRA server until you are satisfied that your test environment upgrade has been successful.
   - If you have any problems with your test environment upgrade which you cannot resolve, create an issue at our support site so that we can assist you.
   - If you have any problems during the upgrade of your production JIRA server, do not allow your users to start using this server. Instead:
     - Continue to use your old JIRA server — this will help ensure that you do not lose production data.
     - Also create an issue at our support site so that we can help you resolve the problems with production JIRA upgrade.

2. Backing Up

Before you begin the JIRA upgrade, we ***strongly recommend*** that you back up your existing JIRA installation ***because you cannot roll back a JIRA upgrade (after step 3.3)***.

2.1 Back up your database

Perform a backup of your external database (using your database's native backup tools) and verify that the backup was created correctly.

- If your database's native backup tools do not allow you to perform an 'online backup' of the database (i.e. typically a 'snapshot' of the database), you should prevent users from updating your existing JIRA data (to ensure structural consistency of your database backup) by temporarily restricting access to JIRA.
  Inconsistent database backups may not restore correctly! If you are unfamiliar with your database's native backup/restore facilities, then before proceeding, test your database backup's integrity by:
  - restoring the database backup to a different (test) system and
  - connecting a test instance of your current JIRA version to this restored database.
- The 'embedded database' is the HSQLDB database supplied with JIRA for evaluation purposes. If you happen to accidentally use the HSQLDB database in a production system, use the Migrating JIRA to Another Server or Creating a Test Environment procedure (from Backing Up) instead of this one.

2.2 Back up your JIRA Home directory

Ensure JIRA is shut down before continuing.

The location of this directory is defined within the `jira-application.properties` configuration file, which is located inside the `WEB-INF/classes` directory within your 'JIRA Installation directory'.

If you are using the JIRA WAR-EAR edition running on Apache Tomcat, your 'JIRA Installation directory' is typically located within the `webapp` directory.

2.3 Back up your attachments directory if located outside your JIRA Home directory

Your attachments directory may be located outside your JIRA Home directory. If so, it will also need to be backed up. To confirm the location of your attachments directory, refer to Configuring File Attachments.

2.4 Back up your JIRA Installation directory

The 'JIRA Installation directory' is the directory into which the JIRA application files and libraries were extracted when JIRA was installed. This directory is also sometimes called the 'JIRA Install directory'.

3. Performing the Upgrade

If you are running a 'mission-critical' JIRA server, we highly recommend performing the remaining steps of this guide in a test environment (e.g. using a copy of your JIRA database and JIRA Home directory) before performing the upgrade for production use.

3.1 Install the new version of JIRA

First, you must start with a fresh installation of your new JIRA version.

Download and extract the JIRA distribution you require, to a new directory. **Do not overwrite your existing JIRA installation. Simply shut this down and install the new JIRA version to a new location.**

Follow the installation instructions for either:

- Installing JIRA Standalone (recommended), or
- Installing JIRA EAR-WAR

If you are using JIRA WAR-EAR, remember to build your new JIRA web application and deploy it to your server. For specific instructions, read the relevant guide (specific to your application server) within the Installing JIRA WAR-EAR section.

3.2 Migrate your existing JIRA configurations over to your new JIRA installation

You may have modified a number of properties within configuration files of your existing JIRA installation.

If so, you need to **make the same modifications in your new JIRA installation**. However, do not simply copy configuration files from your existing JIRA installation and replace the equivalent files in your new JIRA installation, since the properties in these files may have changed from the old version.

For each file you have modified in your existing JIRA installation, you need to **manually edit each equivalent file in your new JIRA installation and re-apply your modifications**.

The following files are commonly modified in JIRA installations:

File	JIRA Standalone location	JIRA WAR-EAR location	Description
jira-application.properties	`atlassian-jira/WEB-INF/classes`	`webapp/WEB-INF/classes`	Advanced JIRA configuration properties

setenv.bat (Windows) or setenv.sh (Linux)	`bin`	Application Server's `bin` directory	Increasing JIRA Memory
osuser.xml	`atlassian-jira/WEB-INF/classes`	`webapp/WEB-INF/classes`	Modified if you have integrated LDAP with JIRA, integrated Crowd with JIRA, or if you are using a custom form of external user management or user authentication.
seraph-config.xml	`atlassian-jira/WEB-INF/classes`	`webapp/WEB-INF/classes`	Modified if you have integrated Crowd with JIRA.

The version-specific upgrade guides contain details on properties which may have changed in these commonly modified files.

In addition to the files above, you should also consider and/or perform the following configurations as part of the upgrade process:

- **Using JIRA with Atlassian's Crowd?** — If you are using Crowd with JIRA, configure your new JIRA to talk to Crowd as described in Integrating Crowd with JIRA.
- **Allocating additional memory to JIRA** — If you had previously allocated additional memory to JIRA, do the same for your new JIRA instance. For more information refer to Increasing JIRA memory.
- **Plugins** — For any plugins that you had installed in your old JIRA:
  1. Download the plugin version for your new version of JIRA from the http://plugins.atlassian.com site.
  2. Install the JAR file(s) in your new JIRA, and carry out any other required installation for the plugin.
  3. If the plugin has a properties file, apply the same changes to it as you had in the old properties file (don't just copy over the old properties file).
- **Character encoding** — Please ensure that character encoding (ie. locale) is the same on the new and old locations. You may have problems with encoding of the file names, if attachments are moved between two system with incompatible encoding.

  Your new version of JIRA may not function correctly or could encounter problems or errors if these are not implemented.
- **Customisations** — If you had made any customisations (code, templates or configuration files), copy over compatible versions of these changes to the new JIRA. (The developers within your organisation who made the customisations to your old version will need to build and test equivalent changes for the new version, and provide you with the files to copy to your new JIRA).
- **(Optional) Disabling Email Access** — If you need to perform some initial tests on your new JIRA installation, you can disable its email access to prevent unintended emails being sent during testing. Be sure to re-enable email access once any testing is complete.
- **(Optional) Running JIRA on a different port** — If your new JIRA is installed on the same machine as your old JIRA, you may wish to make sure it runs on a different port (in case you ever need to restart your old JIRA).
  - For JIRA Standalone, refer to Changing JIRA Standalone's Port.
  - For JIRA WAR-EAR, consult your application server documentation.

3.3 Connect your new JIRA to your existing database

Now you need to configure your new JIRA installation to connect to and use your existing database, which was backed up (above).

Once you have performed this step and start your new JIRA server (in step 3.5 below), your JIRA database will be upgraded and it will no longer be compatible with earlier versions of JIRA.

If you installed the JIRA EAR-WAR distribution and are connecting JIRA to an external database through a JDBC connection, ensure your database's JDBC driver has been copied across to the application server running your new JIRA installation. For details, refer to the appropriate instructions:

- Copying the MySQL JDBC Driver
- Copying the PostgreSQL JDBC Driver
- Copying the SQL Server 2005 JDBC Driver
- Copying the SQL Server 2008 JDBC Driver
- Copying the Oracle JDBC Driver

Configure your new JIRA installation to use your existing database.

- The easiest approach is to use the **JIRA Configuration Tool** to configure your new JIRA installation to connect to your existing database. For details refer to the appropriate instructions:
  - JIRA Configuration Tool for MySQL
  - JIRA Configuration Tool for PostgreSQL
  - JIRA Configuration Tool for SQL Server 2005
  - JIRA Configuration Tool for SQL Server 2008
  - JIRA Configuration Tool for Oracle

- If you prefer to manually configure your new JIRA installation to use your existing database, please note the following:
  - Instructions for manually configuring JIRA's database connections are located below the relevant JIRA Configuration Tool instructions (linked above).
  - If you had previously defined a **Tomcat JNDI datasource connection** to an external database and/or you implemented SSL, edit your new `<Installation-Directory>\conf\server.xml` and copy over the datasource connection definition and/or your SSL configurations from your old `server.xml`, along with any other relevant customisations.

3.4 Point your new JIRA to your existing JIRA Home directory

1. Edit the `jira-application.properties` file found at `WEB-INF/classes/jira-application.properties` within your new **JIRA 4.3.x** Installation directory.
2. Update the `jira.home` property in this file to the path of your **existing** JIRA Home directory, which you backed up (above).
   For more information about this directory, see JIRA Home directory.
3. Remove the '#' at the beginning of this line (so that JIRA no longer regards this line as a comment).
4. Save your updated `jira-application.properties` file.

3.5 Start your new version of JIRA

1. Verify that your old JIRA installation is shut down — if this JIRA server is still operating, shut it down.
2. If you installed the JIRA WAR-EAR distribution within **Tomcat**, **delete the Tomcat work directory before restarting JIRA**. If you do not do this, users may encounter errors when they try to display JIRA pages.
3. Start up your new version of JIRA. For:
   - **JIRA Standalone** — follow the Starting JIRA instructions.
   - **JIRA WAR-EAR** — follow the instructions for starting JIRA for your application server within the Installing JIRA WAR-EAR section.
     During the startup process, your new JIRA installation will create any required database indexes.
4. Visit JIRA in your web browser and log in using a username from your previous JIRA installation. You should be able to log in immediately, without seeing the Setup Wizard.
5. Take a quick look around your JIRA site to confirm that your projects and issues are present and everything looks normal. You should see the new JIRA version number in the page footer.

> **Do not restart your old JIRA installation!**
>
> Your old JIRA installation may likely still be configured to use the same JIRA Home directory and database as your new JIRA installation. Running two separate JIRA installations which share a common JIRA Home directory and database can result in serious data corruption!
>
> If you are concerned about accidentally starting your old JIRA installation (which you backed up above), you can delete your old JIRA installation directory.

4. Post Upgrade Checks and Tasks

It is strongly recommended that you perform the following checks and tasks after you have started your new instance of JIRA:

1. Check your server logs for error messages, even if JIRA appears to be running correctly. If there are any errors there that you cannot resolve, create a support case in https://support.atlassian.com, attach your log file and we will advise you on the errors.
2. If you were previously using External User Management, enable it in the new JIRA instance.
3. If you changed machines when upgrading, change the paths to the indexes, attachments and backup directories, from within the **Administration** section of JIRA.
4. Enable email, if you disabled it during testing.
5. If you migrated any customisations from your old JIRA to the new JIRA, ensure that they are tested thoroughly.

Congratulations! You have completed your JIRA upgrade.

See Also

Disabling Auto-Export

Migrating JIRA to Another Server

This document describes how to perform any of the following:

- migrate/upgrade to **JIRA 4.3.x** on different server hardware or in a different server environment — for example:
  - a new operating system that will run JIRA,
  - new locations for storing your index and/or attachments, or
  - a new database system that will store JIRA's data.
- upgrade to **JIRA 4.3.x** from a version of JIRA prior to 4.0.0.

If you are using JIRA version 4.0.0 or later, please also note the recommended procedure for upgrading to **JIRA 4.3.x**.

> **Upgrading to JIRA 4.3?**
>
> If so, please review the JIRA 4.3 Release Notes and JIRA 4.3 Upgrade Guide for important information about this version of JIRA.

On this page:

- 1. Before You Start
- 2. Backing Up
  - 2.1 Ensure that users cannot update your existing JIRA data
  - 2.2 Back up your database
  - 2.3 Back up your JIRA Home directory
  - 2.4 Back up your attachments and index directories if located outside your JIRA Home directory
  - 2.5 Back up your JIRA Installation directory
- 3. Setting up your New JIRA Installation
  - 3.1 Install the new version of JIRA
  - 3.2 Connect the new version of JIRA to a new, empty database
  - 3.3 Migrate your existing JIRA configurations over to your new JIRA installation
  - 3.4 Point your new JIRA to (a copy of) your existing JIRA Home directory
  - 3.5 Start your new version of JIRA
  - 3.6 Import your old JIRA data into your new JIRA
- 4. Post Upgrade Checks and Tasks

Please read/perform *all steps and sub-steps* in consecutive order.

1. Before You Start

1. You will need current software maintenance to perform the upgrade. If you are unsure, confirm the following:
   - Your license support period is still valid.
   - If your current license has expired but you have a new license with you, please update your license in JIRA.

     If you forget to do this and your license has expired, you will receive errors during the upgrade process. Refer to the instructions on upgrading beyond current license period.
2. Read the release notes and upgrade guide for the version of JIRA you are upgrading to. The upgrade guide (in particular) contains important information that may be relevant to your JIRA installation.
   - If you plan to skip a few JIRA versions for your next JIRA upgrade, **we strongly recommend** that you read the upgrade guides for all major versions between your current version and the version to which you are upgrading. Refer to Important Version-Specific Upgrade Guides for quick links to these guides.
3. Confirm that your Java platform, operating system, application server, database and hardware still comply with the requirements for **JIRA 4.3.x**. Newer versions of JIRA may have different requirements and supported platforms to previous JIRA versions.

   The End of Support Announcements for JIRA page also has important information regarding platform support for future versions of JIRA.
4. Check for any known issues in the JIRA Knowledge Base.
5. If you have installed any additional JIRA plugins (i.e. not included with JIRA), please verify that they will be compatible with the version of JIRA you are upgrading to. You can find a plugin's compatibility information from the the plugin's home page on the Atlassian Plugin Exchange. Once you have confirmed the availability of compatible versions, you should upgrade your plugins after successfully upgrading JIRA. This can be done via the '**Plugin Repository**' in your **Administration Console**.
6. **Test first!** — We strongly recommend performing your upgrade in a test environment first. Do not upgrade your production JIRA server until you are satisfied that your test environment upgrade has been successful.
   - If you have any problems with your test environment upgrade which you cannot resolve, create an issue at our support site so that we can assist you.
   - If you have any problems during the upgrade of your production JIRA server, do not allow your users to start using this server. Instead:
     - Continue to use your old JIRA server — this will help ensure that you do not lose production data.
     - Also create an issue at our support site so that we can help you resolve the problems with production JIRA upgrade.

2. Backing Up

Before you begin the JIRA upgrade, we strongly recommend that you back up your existing JIRA installation.

2.1 Ensure that users cannot update your existing JIRA data

In subsequent steps, you will be required to export JIRA's database from your existing JIRA installation (via an XML backup) and later restore this backup into a new JIRA installation. To ensure that data consistency in your XML backup is maintained, you must prevent users from updating your existing JIRA data by temporarily restricting access to JIRA.

Be aware! Inconsistent XML backups cannot be restored!

2.2 Back up your database

Perform an XML backup of your existing JIRA installation's external database.

- For large (corporate) JIRA installations, this process may require several hours to complete.
- The 'embedded database' is the HSQLDB database supplied with JIRA for evaluation purposes only. If you happen to accidentally use the HSQLDB database in a production system, perform an XML backup of this database and continue on with this procedure.

2.3 Back up your JIRA Home directory

Ensure JIRA is shut down before continuing.

The location of this directory is defined within the `jira-application.properties` configuration file, which is located inside the `WEB-INF/classes` directory in your 'JIRA Installation directory'.

If you are using the JIRA WAR-EAR edition running on Apache Tomcat, your 'JIRA Installation directory' is typically located within the `webapp` directory.

2.4 Back up your attachments and index directories if located outside your JIRA Home directory

Your attachments and index directories may be located outside your JIRA Home directory. If so, they will also need to be backed up. To confirm the location of:

- Your attachments directory — refer to Configuring File Attachments
- Your index directory — refer to Search Indexing.

Also refer to Backing Up Data for more information about backing up attachments in JIRA.

2.5 Back up your JIRA Installation directory

The 'JIRA Installation directory' is the directory into which the JIRA application files and libraries were extracted when JIRA was installed. This directory is also sometimes called the 'JIRA Install directory'.

3. Setting up your New JIRA Installation

> If you are running a 'mission-critical' JIRA server, we highly recommend performing the remaining steps of this guide in a test environment (e.g. using a separate test JIRA database and a copy of your JIRA Home directory) before performing the upgrade for production use.

3.1 Install the new version of JIRA

First, you must start with a fresh installation of your new JIRA version.

Download and extract the JIRA distribution you require, to a new directory. **Do not overwrite your existing JIRA installation. Ensure this has been shut down and install the new JIRA version to a new location.**

Follow the installation instructions for either:

- Installing JIRA Standalone (recommended), or
- Installing JIRA WAR-EAR

If you are using JIRA WAR-EAR, remember to build your new JIRA web application and deploy it to your server. For specific instructions, refer to the JIRA WAR-EAR installation page for your application server within the Installing JIRA WAR-EAR section.

3.2 Connect the new version of JIRA to a new, empty database

You need to create a new, empty database that your new JIRA installation will use to store its data.

Follow the appropriate '**Connecting JIRA to...**' instructions for your database from stage 2, although from stage 4 of that procedure, be aware of the yellow note below:

- Connecting JIRA to MySQL
- Connecting JIRA to PostgreSQL
- Connecting JIRA to SQL Server 2005
- Connecting JIRA to SQL Server 2008
- Connecting JIRA to Oracle

> If you are using a database **jiradb** with your existing installation, create the database for your new JIRA installation with a different name (e.g. something intuitive like **jiradb_422** for JIRA 4.2.2), but with identical access permissions to the old JIRA database. Consult your database administrator if you need assistance with this.

You do not need to create a new database if you are using the embedded HSQL database.

3.3 Migrate your existing JIRA configurations over to your new JIRA installation

You may have modified a number of properties within configuration files of your existing JIRA installation.

If so, you need to **make the same modifications in your new JIRA installation**. However, do not simply copy configuration files from your existing JIRA installation and replace the equivalent files in your new JIRA installation, since the properties in these files may have changed from the old version.

For each file you have modified in your existing JIRA installation, you need to **manually edit each equivalent file in your new JIRA installation and re-apply your modifications**.

The following files are commonly modified in JIRA installations:

File	JIRA Standalone location	JIRA WAR-EAR location	Description
jira-application.properties	`atlassian-jira/WEB-INF/classes`	`webapp/WEB-INF/classes`	Advanced JIRA configuration properties
setenv.bat (Windows) or **setenv.sh (Linux)**	`bin`	Application Server's `bin` directory	Increasing JIRA Memory
osuser.xml	`atlassian-jira/WEB-INF/classes`	`webapp/WEB-INF/classes`	Modified if you have integrated LDAP with JIRA, integrated Crowd with JIRA, or if you are using a custom form of external user management or user authentication.
seraph-config.xml	`atlassian-jira/WEB-INF/classes`	`webapp/WEB-INF/classes`	Modified if you have integrated Crowd with JIRA.

The version-specific upgrade guides contain details on properties which may have changed in these commonly modified files.

In addition to the files above, you should also consider and/or perform the following configurations as part of the upgrade process:

- **Using JIRA with Atlassian's Crowd?** — If you are using Crowd with JIRA, configure your new JIRA to talk to Crowd as described in Integrating Crowd with JIRA.
- **Allocating additional memory to JIRA** — If you had previously allocated additional memory to JIRA, do the same for your new JIRA instance. For more information refer to Increasing JIRA memory.
- **Plugins** — For any plugins that you had installed in your old JIRA:
  1. Download the plugin version for your new version of JIRA from the http://plugins.atlassian.com site.
  2. Install the JAR file(s) in your new JIRA, and carry out any other required installation for the plugin.
  3. If the plugin has a properties file, apply the same changes to it as you had in the old properties file (don't just copy over the old properties file).
- **Character encoding** — Please ensure that character encoding (ie. locale) is the same on the new and old locations. You may have problems with encoding of the file names, if attachments are moved between two system with incompatible encoding.

  Your new version of JIRA may not function correctly or could encounter problems or errors if these are not implemented.
- **Customisations** — If you had made any customisations (code, templates or configuration files), copy over compatible versions of these changes to the new JIRA. (The developers within your organisation who made the customisations to your old version will need to build and test equivalent changes for the new version, and provide you with the files to copy to your new JIRA).
- **(Optional) Disabling Email Access** — If you need to perform some initial tests on your new JIRA installation, you can disable its email access to prevent unintended emails being sent during testing. Be sure to re-enable email access once any testing is complete.
- **(Optional) Running JIRA on a different port** — If your new JIRA is installed on the same machine as your old JIRA, you may wish to make sure it runs on a different port (in case you ever need to restart your old JIRA).
  - For JIRA Standalone, refer to Changing JIRA Standalone's Port.
  - For JIRA WAR-EAR, consult your application server documentation.

3.4 Point your new JIRA to (a copy of) your existing JIRA Home directory

If your new **JIRA 4.3.x** installation is on a new server, **copy your existing JIRA Home directory** from the old server to the new server before proceeding.

1. Edit the `jira-application.properties` file found at `WEB-INF/classes/jira-application.properties` within your new **JIRA 4.3.x** Installation directory.
2. Update the `jira.home` property in this file to the path of the new JIRA Home directory:
   - If your **JIRA 4.3.x** installation is on a new server, update the `jira.home` property to the path of your copied JIRA Home directory.
   - If your **JIRA 4.3.x** installation is on the same server, update the `jira.home` property to the path of your **existing** JIRA Home directory.

     For more information about this directory, see JIRA Home directory.
3. Remove the '#' at the beginning of this line (so that JIRA no longer regards this line as a comment).
4. Save your updated `jira-application.properties` file.

3.5 Start your new version of JIRA

1. Verify that your old JIRA installation is shut down — if this JIRA server is still operating, shut it down.
2. If you installed the JIRA WAR-EAR distribution within **Tomcat**, **delete the Tomcat work directory before restarting JIRA**. If you do not do this, users may encounter errors when they try to display JIRA pages.
3. Start up your new version of JIRA. For:
   - **JIRA Standalone** — follow the Starting JIRA instructions.
   - **JIRA WAR-EAR** — follow the instructions for starting JIRA for your application server within the Installing JIRA WAR-EAR section.

     During the startup process, your new JIRA installation will create any required database indexes. If you created any custom database indexes, please check them afterwards and remove any that duplicate the indexes added by JIRA.

Do not restart your old JIRA installation...

If your new **JIRA 4.3.x** installation is on the same server as your old one, it may still be configured to use the same JIRA Home directory as your new JIRA installation. Running two separate JIRA installations which share a common JIRA Home directory can lead to serious data corruption.

3.6 Import your old JIRA data into your new JIRA

After you have successfully started your new JIRA installation, you will need to import the data from your old instance into the new instance. You will need the backup file of data from your old JIRA that you created earlier in these instructions (above).

To import your old JIRA data into your new JIRA,

1. Access JIRA via your web browser. You will see the Setup Wizard.
2. Click the **'import your existing data'** link.
3. The 'Import Existing Data' page will be displayed.
    - In the **'File name'** field, specify the XML backup file you created previously.
    - In the **'Index Location'** field, specify a different directory from your old JIRA.
4. Restore the attachments directory that you backed up previously, into the attachments directory of your new JIRA. (See Restoring Data.)
   It is recommended that you avoid passing through a proxy when performing an XML restore, especially if your JIRA instance is very large. Using a proxy may cause timeout errors.
5. Access JIRA via your web browser again and log in using a username from your previous JIRA installation.
6. Take a quick look around your JIRA site to confirm that your projects and issues are present and everything looks normal. You should see the new JIRA version number in the page footer.

4. Post Upgrade Checks and Tasks

It is strongly recommended that you perform the following checks and tasks after you have started your new instance of JIRA:

1. Check your server logs for error messages, even if JIRA appears to be running correctly. If there are any errors there that you cannot resolve, create a support case in https://support.atlassian.com, attach your log file and we will advise you on the errors.
2. If you were previously using External User Management, enable it in the new JIRA instance.
3. If you changed machines when upgrading, change the paths to the indexes, attachments and backup directories, from within the **Administration** section of JIRA.
4. Enable email, if you disabled it during testing.
5. If you migrated any customisations from your old JIRA to the new JIRA, ensure that they are tested thoroughly.

Congratulations! You have completed your JIRA migration/upgrade.

See Also

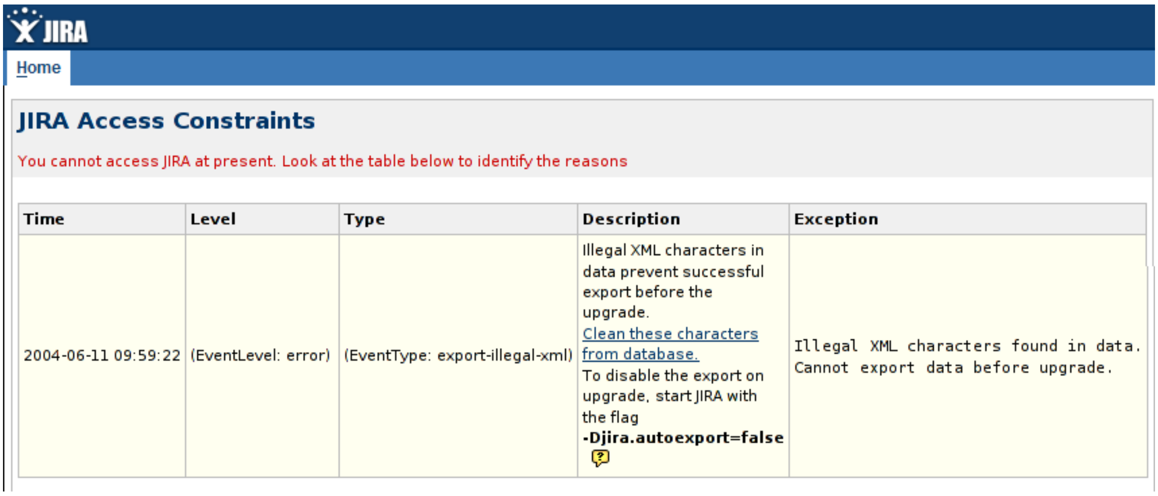
Disabling Auto-Export
Restoring Data
Upgrading JIRA
Switching Application Servers
Switching Databases

Disabling Auto-Export

When upgrading JIRA, one points the new JIRA installation at the old JIRA database. JIRA will automatically make any structural database modifications required to support new JIRA features.

To be safe, JIRA first tries to create an XML backup of your data at the point just before the upgrade. This would allow you to 'roll back' to the old JIRA version, should anything go wrong.

Sometimes the automatic XML backup procedure fails, often resulting from characters in the database which cannot be represented in XML — such as non-displayable control characters that have been 'cut-and-pasted' into a JIRA field.



In these circumstances, you can force the upgrade to proceed by editing `atlassian-jira/WEB-INF/classes/jira-application.properties`, and setting **jira.autoexport=false.**

After having successfully upgraded JIRA, it is best to remove this parameter as it should no longer be required.

If you have any upgrade problems not covered here or in the upgrade documentation, please contact us — we're happy to help.

JIRA Releases

Latest Production Releases

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

Please view the release notes to get up-to-date information about the improvements made in each release. If upgrading from a previous version of JIRA please pay attention to the *Upgrade Guide* of the latest version and any version of JIRA that your are 'skipping' during the upgrade.

Release Summary

The features of each JIRA release, up to and including the latest version, can be found in the JIRA Release Summary.

For full details on each of the JIRA releases, please read the release notes for the previous releases listed below.

Previous Releases

See the complete list of Releases Notes and Upgrade Guides for information about older releases.

Production Releases

This page lists release notes and upgrade guides from past versions of JIRA.

If upgrading from a previous version of JIRA please pay attention to the *Upgrade Guide* of the version you are upgrading to, and any version of JIRA that you are 'skipping' during the upgrade.

> You can also view lists of the Release Notes or Upgrade Guides separately.

- JIRA 4.3 Release Notes — Identity management comes of age in JIRA 4.3, with complete LDAP integration. JIRA 4.3 also includes the Universal Plugin Manager for easier management of plugins, and a new data importer for easier migration from your old systems. Additionally, a raft of new JQL functions give you many powerful new searching options, such as the ability to search an issue's change history.
  - JIRA 4.3 Upgrade Guide
    - Plugin Developer Notes for JIRA 4.3
- JIRA 4.2 Release Notes — JIRA 4.2 gives you a few extra minutes of precious time every day, by providing the ability to triage issues directly from the Issue Navigator without you having to open each issue. For the mouse-averse, the new 'Operations Dialog' box provides access to all menu options via the keyboard.
  - JIRA 4.2.1 Release Notes — The Atlassian JIRA team announces the release of **JIRA 4.2.1**. This point release contains several updates and fixes, including the issue of remembering which sections of the 'View Issue' screen are collapsed. This

point release is a **highly recommended upgrade** as it contains important fixes to security vulnerabilities — please refer to the JIRA Security Advisory 2010-12-06 for details.
        - JIRA 4.2.1 Upgrade Guide
    - JIRA 4.2.2 Release Notes — The Atlassian JIRA team announces the release of **JIRA 4.2.2**. This point release contains several updates and fixes, plus a Beta release of the JIRA Importers Plugin, providing improved support for Bugzilla. Please see the documentation: Importing Data from Bugzilla.
        - JIRA 4.2.2 Upgrade Guide
    - JIRA 4.2.3 Release Notes — The Atlassian JIRA team announces the release of **JIRA 4.2.3**. This point release contains several updates and fixes, plus a new release of the JIRA Importers Plugin, providing improved support for Mantis and CSV imports. Please see the documentation: Importing Data From Mantis and Importing Data From CSV.
        - JIRA 4.2.3 Upgrade Guide
    - JIRA 4.2.4 Release Notes — The Atlassian JIRA team announces the release of **JIRA 4.2.4**. This point release fixes an issue with the 'Filter Results' gadget. It also contains version 1.7.1 of the JIRA Importers Plugin.
        - JIRA 4.2.4 Upgrade Guide
    - JIRA 4.2 Upgrade Guide
        - Updating JIRA Plugins for JIRA 4.2
- JIRA 4.1 Release Notes — This release makes your JIRA experience easier and more convenient than ever. The issue UI has been redesigned for a simpler, friendlier experience, and keyboard shortcuts have been streamlined. Issues can now be actioned directly from your dashboard via a handy dropdown in the gadgets. Each issue's attachments are now displayed in an image gallery, and can all be downloaded to a single ZIP file with just one click.
    - JIRA 4.1 Upgrade Guide
        - Updating JIRA Plugins for JIRA 4.1
    - JIRA 4.1.2 Release Notes — The Atlassian JIRA team is proud to announce the release of **JIRA 4.1.2**. This point release is a **highly recommended upgrade** as it contains important fixes to security vulnerabilities — please refer to the JIRA Security Advisory 2010-06-18 for details.
        - JIRA 4.1.2 Upgrade Guide
    - JIRA 4.1.1 Release Notes — The Atlassian JIRA team announces the release of **JIRA 4.1.1**. This point release is a **highly recommended** upgrade as it contains important fixes to security vulnerabilities in JIRA (listed below). For more information about these security vulnerabilities and patches to fix these vulnerabilities in earlier versions of JIRA, please refer to the JIRA Security Advisory 2010-04-16.
        - JIRA 4.1.1 Upgrade Guide
- JIRA 4.0 Release Notes — We have improved the UI to provide contextual awareness, improving the navigation and usability with features like activity streams and issue history. We have also added the most powerful searching capabilities ever seen in a bug tracker, called JIRA Query Language (JQL). The simple auto-complete entry system makes it incredibly easy for any user to create sophisticated queries.
    - JIRA 4.0 Upgrade Guide
        - JIRA 4.0 Database Schema Changes for MySQL and Oracle
        - Updating JIRA Plugins for JIRA 4.0
        - Upgrading JIRA 2.x Data to JIRA 4.0
        - Writing a Plugin Upgrade Task for JIRA 4.0
    - JIRA 4.0.2 Release Notes — The Atlassian JIRA team is proud to announce the release of **JIRA 4.0.2**. This point release contains over 40 bug fixes and improvements, notably including:
        - JIRA 4.0.2 Upgrade Guide
    - JIRA 4.0.1 Release Notes — The Atlassian JIRA team is proud to announce the release of **JIRA 4.0.1**. This point release contains over **60** bug fixes and improvements, notably including the gadget loopback issue. We are also very pleased to announce support for WebSphere 6.1.0.27.
        - JIRA 4.0.1 Upgrade Guide
- JIRA 3.13 Release Notes — This release fulfils some of the most popular JIRA feature requests. Dashboards can now be shared, and filter sharing has been improved — so it's easy to set up multiple 'template' dashboards, each with specific portlets and filters. New JIRA users can then simply select the dashboards most suited to them.
    - JIRA 3.13 Upgrade Guide
    - JIRA 3.13.5 Release Notes — The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.5** in Standard, Professional and Enterprise editions. This point release includes over **30** bug fixes and improvements.
        - JIRA 3.13.5 Upgrade Guide
    - JIRA 3.13.4 Release Notes — The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.4** in Standard, Professional and Enterprise editions. This point release includes over **20** bug fixes and improvements.
        - JIRA 3.13.4 Upgrade Guide
    - JIRA 3.13.3 Release Notes — The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.3** in Standard, Professional and Enterprise editions. This point release includes over **85** bug fixes and improvements, including an important security fix — please see JIRA Security Advisory 2009-04-02 for details.
        - JIRA 3.13.3 Upgrade Guide
    - JIRA 3.13.2 Release Notes
        - JIRA 3.13.2 Upgrade Guide
    - JIRA 3.13.1 Release Notes
        - JIRA 3.13.1 Upgrade Guide
- JIRA 3.12 Release Notes — JIRA 3.12 provides a number of enhancements for the upcoming JIRA Studio. Because some of these enhancements may be of benefit to you, we have decided to provide them as a public release rather than making you wait until JIRA 4.0.
    - JIRA 3.12 Upgrade Guide
        - JIRA 3.12 DB Schema Changes
    - JIRA 3.12.3 Release Notes
        - JIRA 3.12.3 Upgrade Guide
    - JIRA 3.12.2 Release Notes
        - JIRA 3.12.2 Upgrade Guide
    - JIRA 3.12.1 Release Notes
        - JIRA 3.12.1 Upgrade Guide
- JIRA 3.11 Release Notes — This release focuses on time-tracking. Time-tracking data (that is, the estimated and actual time spent on an issue) now includes the issue's sub-tasks. The aggregated time-tracking data is displayed both within individual 'parent' issues and in the Issue Navigator, so it can be easily reported on, exported to Excel, etc.
    - JIRA 3.11 Upgrade Guide

- JIRA 3.10 Release Notes — Editable worklogs; new ways to browse Components and Versions.
  - JIRA 3.10 Upgrade Guide
  - JIRA 3.10.2 Release Notes
    - JIRA 3.10.2 Upgrade Guide
  - JIRA 3.10.1 Release Notes
    - JIRA 3.10.1 Upgrade Guide
- JIRA 3.9 Release Notes — Convert issues to sub-tasks, and sub-tasks to issues. Use the convenient new scheduler to subscribe to issue filters.
  - JIRA 3.9 Upgrade Guide
  - JIRA 3.9.3 Release Notes — Professional French and German translations
    - JIRA 3.9.3 Upgrade Guide
  - JIRA 3.9.2 Release Notes
    - JIRA 3.9.2 Upgrade Guide
  - JIRA 3.9.1 Release Notes
    - Important Security Patch for JIRA versions 3.7.x & 3.8.x
    - JIRA 3.9.1 Upgrade Guide
- JIRA 3.8 Release Notes — Editable Comments, Self-installer for Windows, CAPTCHA for new account signup, Integration with Crowd, Improvements to the Bugzilla importer
  - Feedback for DHTML-loading of Issue screens
  - JIRA 3.8 Upgrade Guide
    - JIRA 3.8 Database Schema Changes
  - JIRA 3.8.1 Release Notes
    - JIRA 3.8.1 Upgrade Guide
- JIRA 3.7 Release Notes — Project Roles, 'Charting' View for Issue Navigator, RSS Improvements, User Properties, SVN Project Panel plugin, SVN Commit Acceptance plugin
  - Issue Operations plugin
  - JIRA 3.7 Upgrade Guide
    - ActionManager Removed
    - JIRA 3.7 Database Schema Changes
    - Possible upgrade problems + solutions
    - SQL Scripts for 3.6.x to 3.7 schema upgrade
  - JIRA 3.7.4 Release Notes
    - JIRA 3.7.4 Upgrade Guide
  - JIRA 3.7.3 Release Notes
    - JIRA 3.7.3 Upgrade Guide
  - JIRA 3.7.2 Release Notes
    - JIRA 3.7.2 Upgrade Guide
  - JIRA 3.7.1 Release Notes
    - JIRA 3.7.1 Upgrade guide
- JIRA 3.6 Release Notes — Custom Events. Group Picker Custom Field, Wiki-Style Linking, Expandable Fields
  - JIRA 3.6 Upgrade Guide
  - JIRA 3.6.5 Release Notes
    - JIRA 3.6.5 Upgrade guide
  - JIRA 3.6.4 Release Notes
    - JIRA 3.6.4 Upgrade guide
  - JIRA 3.6.3 Release Notes
    - JIRA 3.6.3 Upgrade guide
  - JIRA 3.6.2 Release Notes
    - JIRA 3.6.2 Upgrade guide
  - JIRA 3.6.1 Release Notes
    - JIRA 3.6.1 Upgrade Guide
- JIRA 3.5 Release Notes — Bulk Workflow Transition, a new Charting Plugin, MS Word Export, JIRA Page Linker Plugin, Component Lead Notification Type
  - JIRA 3.5 Upgrade Guide
  - JIRA 3.5.3 Release Notes
    - JIRA 3.5.3 Upgrade Guide
  - JIRA 3.5.2 Release Notes
    - JIRA 3.5.2 Upgrade Guide
  - JIRA 3.5.1 Release Notes
    - JIRA 3.5.1 Upgrade Guide
- JIRA 3.4 and 3.4.1 Release Notes — Issue by project, renderers, clone portlets, issue operation plugin, improvements and bug fixes.
  - JIRA 3.4 and 3.4.1 Upgrade Guide
    - Upgrading Custom Field Types in JIRA 3.4
    - Upgrading Custom Field Types in JIRA 3.4.1
  - JIRA 3.4.3 Release Notes
    - JIRA 3.4.3 Upgrade Guide
  - JIRA 3.4.2 Release Notes
    - JIRA 3.4.2 Upgrade Guide
  - JIRA 3.4.1 Release Notes
- JIRA 3.3 Release Notes — Create filters with multiple projects, improved date search, bulk move and performance improvements.
  - JIRA 3.3 Upgrade Guide
    - Parameter changes in Issue Navigator
    - Upgrading custom CustomFieldTypes in JIRA 3.3
    - Upgrading to JIRA 3.3 Standalone
  - JIRA 3.3.3 Release Notes
    - JIRA 3.3.3 Upgrade Guide
  - JIRA 3.3.2 Release Notes
  - JIRA 3.3.1 Release Notes
    - JIRA 3.3.1 Upgrade Guide
      - JIRA 3.3.1 Issue Tab Panel extension

- JIRA 3.2 Release Notes — Fields can be configured on a per-screen basis, screens can contain tabs, more flexible custom fields, and performance improvements.
    - JIRA 3.2 Upgrade Guide
        - Notifications no longer sent to raw email addresses if anonymous browsing disabled
        - Restricting Edit based on Issue Status
        - Upgrading custom CustomFieldTypes in JIRA 3.2
        - Upgrading Workflow Plugins for JIRA 3.2
        - Using Oracle 10g drivers to solve the 4000 character limitation
        - Workflows using default "Closed" status — h2. Affected users
    - 3.2 performance benchmarks
    - JIRA 3.2.3 Release Notes
    - JIRA 3.2.2 Release Notes
    - JIRA 3.2.1 Release Notes
- JIRA 3.1 Release Notes — CSV import wizard, workflow action keyboard shortcuts, assign issues by mail and performance improvements.
    - JIRA 3.1 Upgrade Notes
    - JIRA 3.1.1 Release Notes
- JIRA 3.0 Release Notes — Configurable workflow with editor, sub-tasks, plugin system, custom fields improvements, clone issue, change reporter, multiple attachments, introduction of the standard edition.
    - JIRA 3.0 Upgrade Notes
    - JIRA 3.0.3 Release Notes
    - JIRA 3.0.2 Release Notes
    - JIRA 3.0.1 Release Notes
- JIRA 2.6 Release Notes
- All JIRA Release Notes (version 3.x and later)
- All JIRA Upgrade Guides (version 3.x and later)
    - Aggregated JIRA 3.x Upgrade Guides
- Important Version-Specific Upgrade Guides — Below is a list of upgrade guides for all previous major and minor releases of JIRA, each of which has important upgrade information:

JIRA 4.3 Release Notes

16 March, 2011

The Atlassian JIRA team is proud to bring you a brand new version of one of the world's favourite issue-trackers.

Identity management comes of age in JIRA 4.3, with complete LDAP integration. JIRA 4.3 also includes the Universal Plugin Manager for easier management of plugins, and a new data importer for easier migration from your old systems. Additionally, a raft of new JQL functions give you many powerful new searching options, such as the ability to search an issue's change history.

Dashboard Publish/Subscribe with Confluence (i.e. Gadgets 2.0) is also included, so if you are using Confluence as well as JIRA, your Confluence gadgets will now appear in the JIRA Gadget Directory.

Note to developers: JIRA 4.3 includes Unified Application Links (UAL) 3.2, Gadgets 2.0, and the Atlassian Plugin Framework version 2.6.

Upgrading to JIRA 4.3 is free for all customers with active JIRA software maintenance as of March 15, 2011.

Highlights of JIRA 4.3:

- Full Integration with LDAP and Active Directory
- Easy Management of User Directories via JIRA Admin UI
- New Plugin Management System
- Add Another Application's Gadgets to your JIRA Gadget Directory
- Improved Importer
- Dashboard Performance Improvements
- JIRA Now Supports 'In-place Database Upgrades'
- Search for Issue Changes, Relative Dates and Relative Versions with JQL
- Quick Search Enhancements
- Revamped User Avatars
- Improvements to Issue Links
- Remembered Assignees
- Mail Server Configuration Improvements
- Security Enhancements
- Support Tools Plugin Now Bundled
- Application Links: Connecting Applications Together
- Support for Chrome and Safari 5 Browsers
- REST API Improvements
- Other Enhancements and Fixes

Thank you for your feedback:

More than **20** new feature requests implemented

Over **1000** votes fulfilled

Your votes and issues help us keep improving our products, and are much appreciated.

Upgrading to JIRA 4.3
JIRA 4.3 can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 4.3 Upgrade Guide.

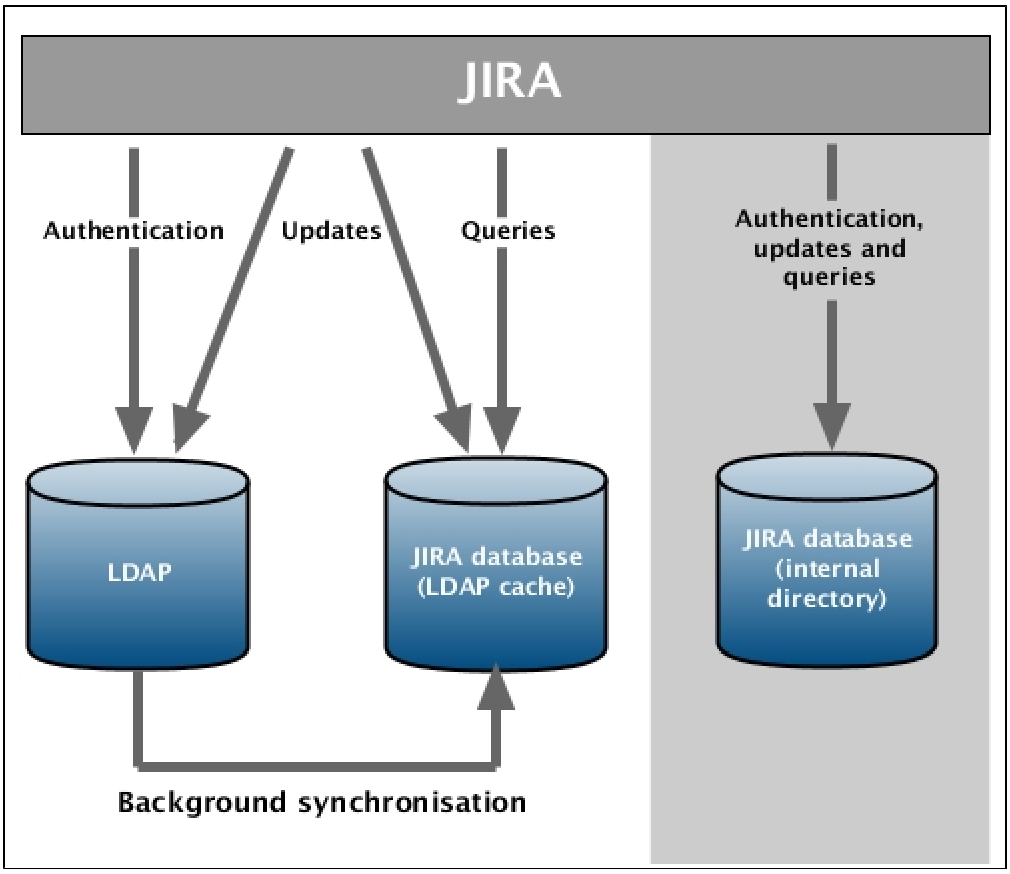
Highlights of JIRA 4.3

Full Integration with LDAP and Active Directory

The way users and groups are stored and accessed in JIRA has been totally rewritten in this release, giving you the ability to connect to an LDAP server — including Microsoft Active Directory — for *all* user information. Your options include:

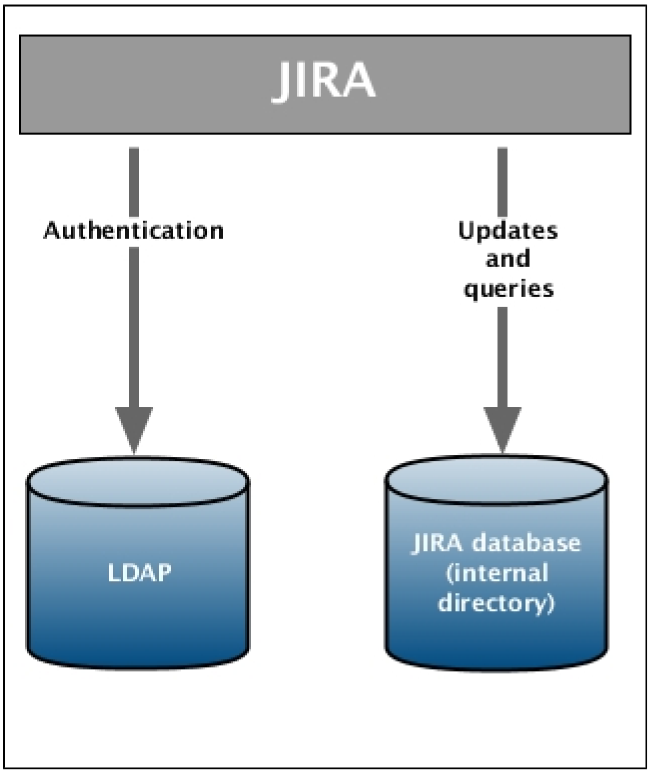
Integrate JIRA with LDAP/Active Directory

Update your user details in either JIRA *or* LDAP/Active Directory and they will automatically populate to the other repository:



Use LDAP for authentication only

This was the old way of integrating JIRA with LDAP, prior to JIRA 4.3. You can still do this, but much more easily (see below).



Connect to a Crowd server for user management

For larger and more complex installations, you may need to install Atlassian Crowd for user management and single sign-on. (See our guide to limitations and recommendations.) When integrating earlier versions of JIRA and Crowd, you had to manually edit a number of configuration files. JIRA 4.3 offers the following new features:

- Simple and quick setup via the JIRA and Crowd administration consoles.
- Clever synchronisation and caching to ensure the best response times.
- More...

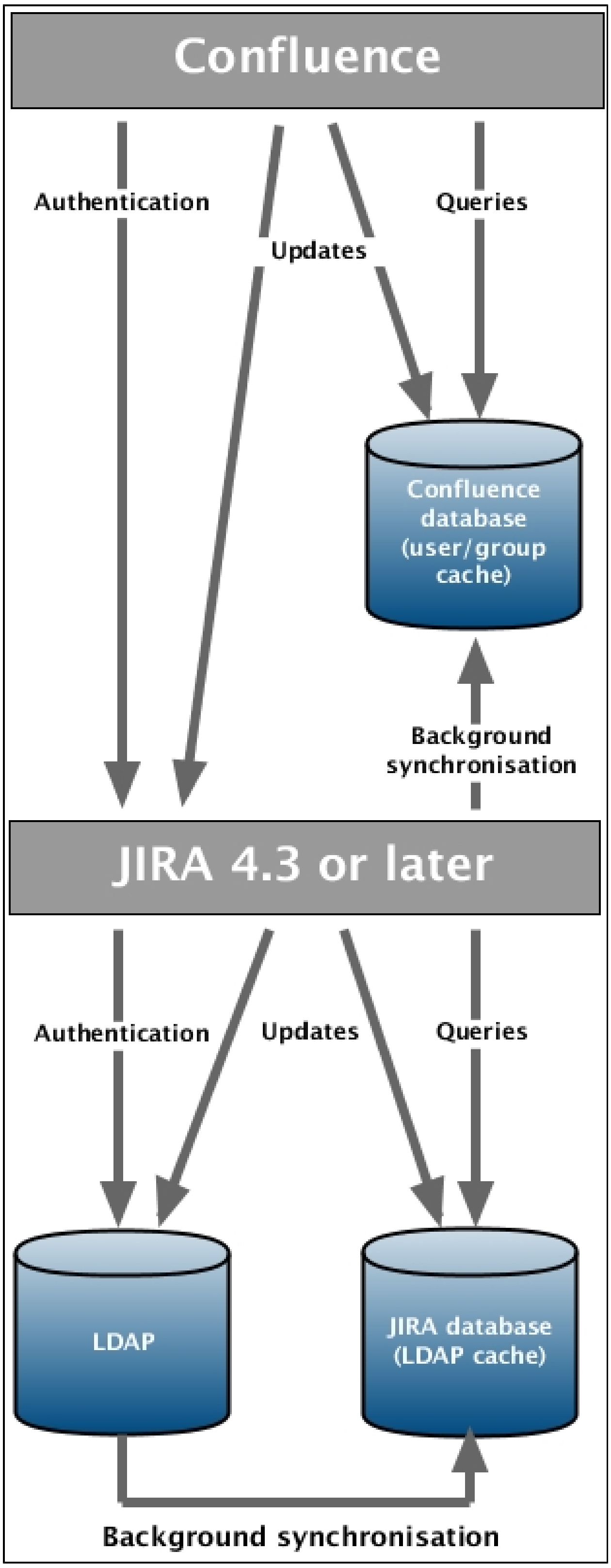
Use multiple LDAP and/or Crowd servers simultaneously

If you have multiple directories, you can now simply connect JIRA to all of them.

Connect Confluence to your JIRA User Directory

JIRA 4.3 can act as the directory manager for your Confluence site, interacting with one or more user directories and ensuring that you have the same set of users and groups across both applications.

The Confluence 3.5 administration UI can connect directly to JIRA 4.3. Clever synchronisation and caching ensure the best response times for your directory searches.



Earlier versions of Confluence can continue to use a direct JDBC connection to JIRA 4.2 and earlier.

^Top

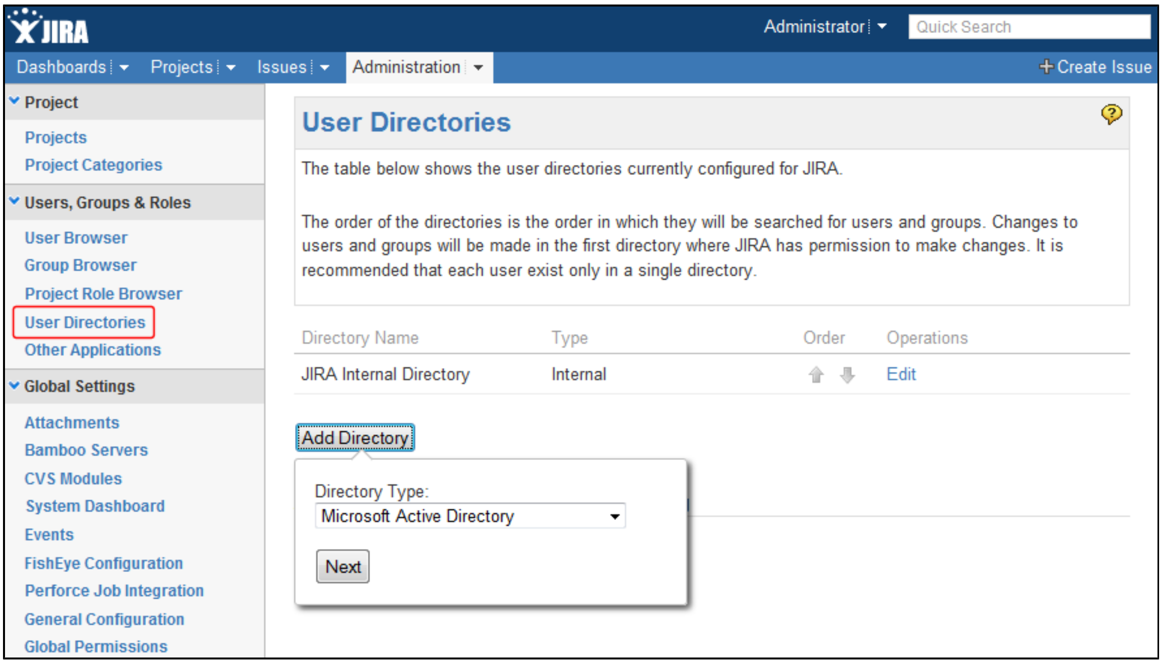
2

Easy Management of User Directories via JIRA Admin UI

In JIRA 4.3, administrators can now manage external User Directories directly from the JIRA Administration screens. Gone are the days of manually editing XML files.

JIRA 4.3 brings a simple, powerful and flexible directory management interface:

- Choose from a list of supported directory types, including Microsoft Active Directory and ten other popular LDAP schemas.
- Configure all your LDAP settings via the JIRA Administration interface: permissions, server and schema settings. We pre-populate the fields with default values depending on your choice of directory type.
- Choose the LDAP permissions to suit your needs: read/write, read only, local groups or authentication only.
- Make use of the caching and copy-as-required configurations to optimise the performance of your LDAP searches.
- Add as many directory servers as you need. Connect directory servers of different types, including the JIRA internal directory (default), LDAP, Crowd and/or another JIRA server.
- Turn on support for nested groups.
- Configure your LDAP connection pool.



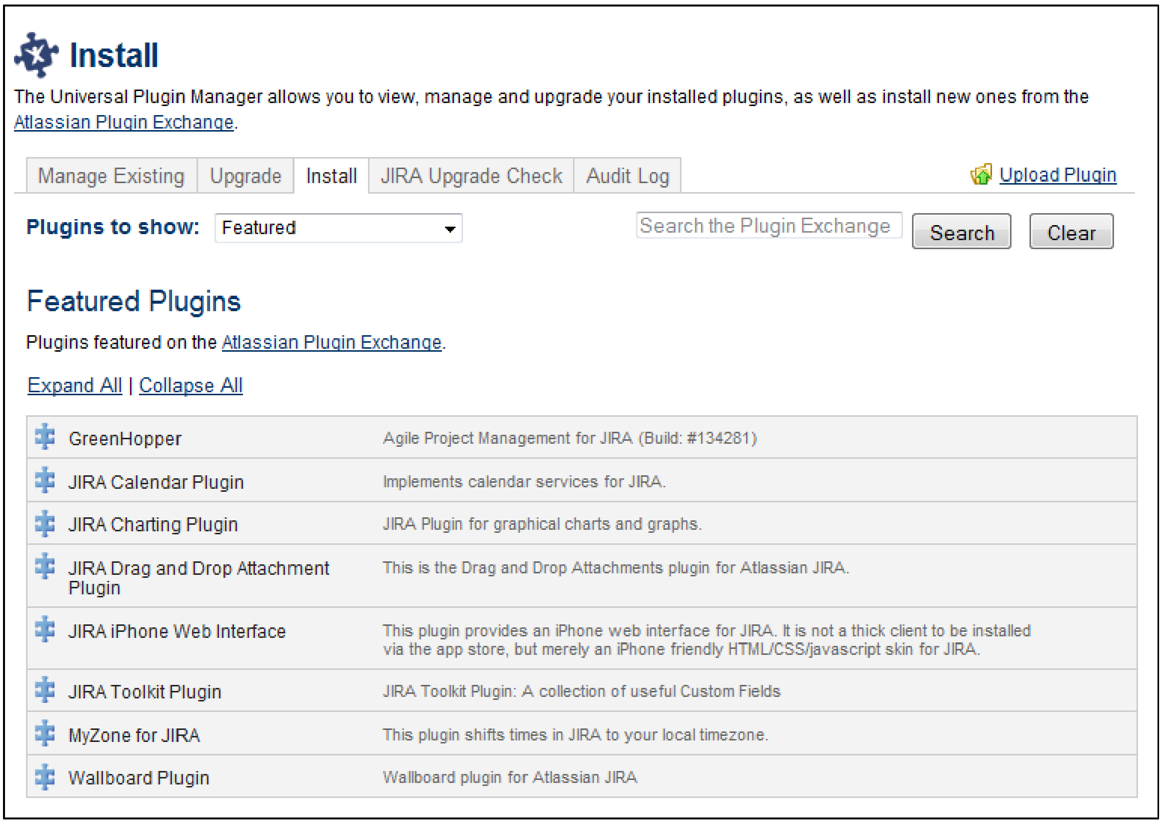
^Top

3

New Plugin Management System

JIRA 4.3 includes the Universal Plugin Manager (UPM), which provides you with a simple way of adding and managing plugins:

- Auto-discovery of available plugins (see **Featured Plugins** in the screenshot below)
- Point-and-click installation — you no longer need to download JAR files and shut down JIRA to install them.



See Managing JIRA's Plugins.

^Top

4

Add Another Application's Gadgets to your JIRA Gadget Directory

JIRA 4.3 includes Atlassian Gadgets 2.0 with Gadget Subscriptions. This allows you to quickly add all gadgets from your Confluence, Bamboo, FishEye or Crucible instance — or from another JIRA instance — to your JIRA Gadget Directory, for easy addition to your JIRA dashboard:

See Subscribing to Another Application's Gadgets.

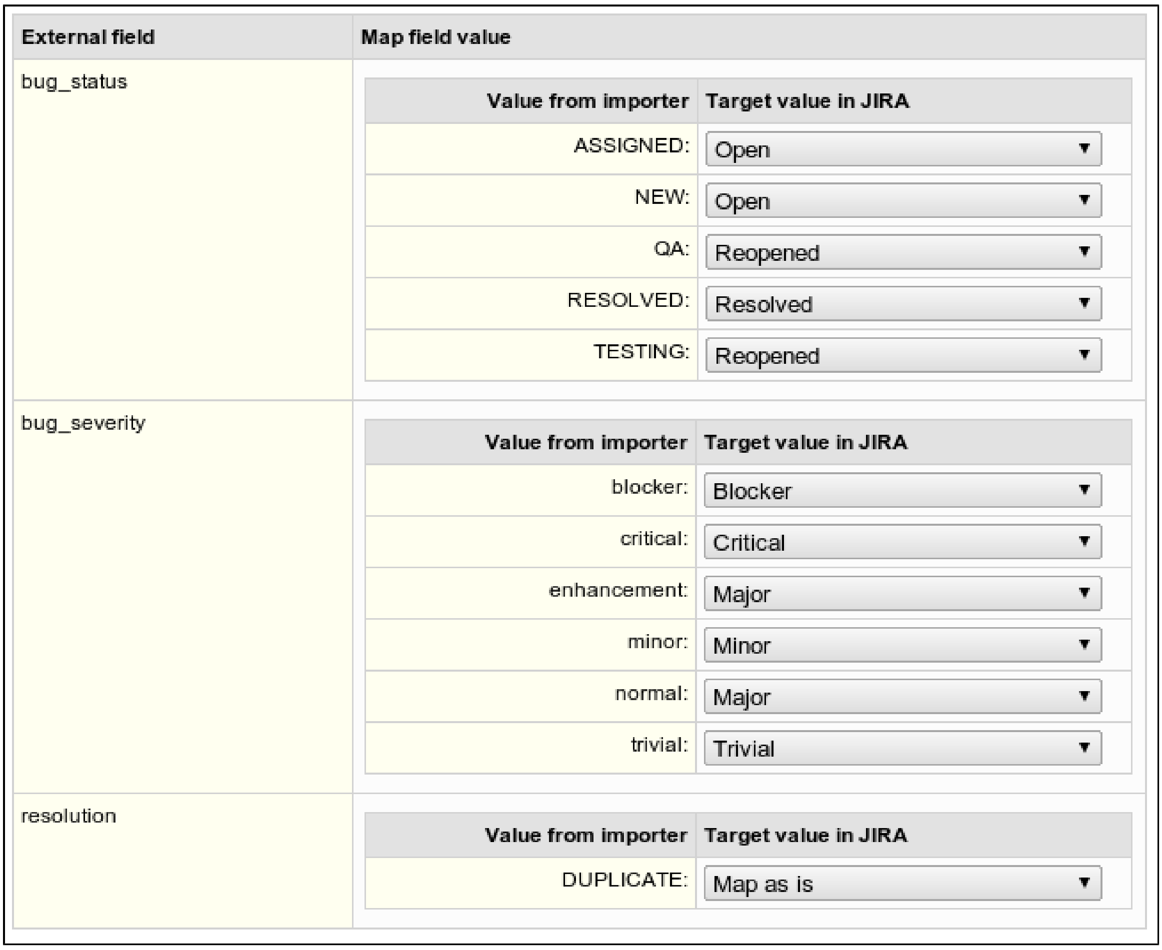
^Top

5

Improved Importer

JIRA 4.3 provides a greatly improved Importer for Bugzilla, Mantis, FogBugz and CSV files, by bundling the JIRA Importers Plugin.

The web-based import wizard makes it easy to map fields — and individual field values — from your old bug-tracker to your new JIRA system:



External field	Map field value	
bug_status	**Value from importer**	**Target value in JIRA**
	ASSIGNED:	Open
	NEW:	Open
	QA:	Reopened
	RESOLVED:	Resolved
	TESTING:	Reopened
bug_severity	**Value from importer**	**Target value in JIRA**
	blocker:	Blocker
	critical:	Critical
	enhancement:	Major
	minor:	Minor
	normal:	Major
	trivial:	Trivial
resolution	**Value from importer**	**Target value in JIRA**
	DUPLICATE:	Map as is

^Top

6

Dashboard Performance Improvements

We are extremely pleased to announce that you should see a noticeable reduction in the time it takes to load a Dashboard.

- On average, dashboard performance has improved by 29%
- For large dashboards, the performance improvement is 35%

We are also extremely pleased to announce that you should see a noticeable reduction in the time it takes to load the Gadget Directory (depending on how many external gadgets you have configured).

^Top

7

JIRA Now Supports 'In-place Database Upgrades'

JIRA 4.3 now officially supports 'in-place database upgrades', when upgrading from JIRA 4.0.0 or later.

This method requires much less downtime during the JIRA upgrade process, especially if you operate a large JIRA installation. You no longer need to export your existing JIRA data to an XML backup and then restore this data into your new JIRA version. Instead, we now support simply 'pointing' your new version of JIRA at your existing JIRA database!

See the documentation for more details.

^Top

8

Search for Issue Changes, Relative Dates and Relative Versions with JQL

JIRA 4.3 incorporates new several functions and operators. You can now:

Search the Change History with JQL 'WAS' Operator

JIRA 4.3 introduces the ability to search the Change History of issues. In this release you can search for changes to the Status field, and there's much more functionality to come in future releases.

For example, the following will return all issues that currently have, or previously had, a status of 'In Progress':

```
status WAS "In Progress"
```

The `WAS` operator can be used with the `NOT`, `IN` and `NOT IN` operators, e.g. to find issues that have never had a status of 'In Progress' or 'Resolved':

```
status WAS NOT IN ("In Progress","Resolved")
```

Search for relative dates and versions with JQL 'startOfDay', 'endOfDay', 'earliestUnreleasedVersion', 'latestReleasedVersion'

JIRA 4.3 introduces the ability to search for issues relative to the current day, month, week or year. For example, to find issues that have been created today:

```
created > startOfDay()
```

Or to find issues that are due by the end of this month:

```
due < endOfMonth()
```

You can also perform searches based on the earliest unreleased version (i.e. the next version that is due to be released) of a specified project:

```
earliestUnreleasedVersion(project)
```

Or on the most recently released version of a specified project:

```
latestReleasedVersion(project)
```

^Top

9

Quick Search Enhancements

JIRA 4.3 incorporates several enhancements to Quick Search. You can now:

Use a wild card when searching the 'Fix Version' field with Quick Search

When using Quick Search, you can now use the wildcard symbol: "`*`" to find issues that matches a core part of a Fix Version. For example, "`ff:3.2*`" will match any issue whose Fix For Version is:

- 3.2
- 3.2-beta
- 3.2.1
- 3.2.x

Use the `r:` prefix with Quick Search to find issues reported by a specific user

With Quick Search, you can find issues reported by you, another user or with no reporter, using the prefix "`r:`" followed by a specific reporter term such as "`me`", a username or "`none`", such that:

- "`r:me`" — finds issues reported by you.
- "`r:samuel`" — finds issues reported by the user whose username is "samuel".
- "`r:none`" — finds issues with no reporter.

^Top

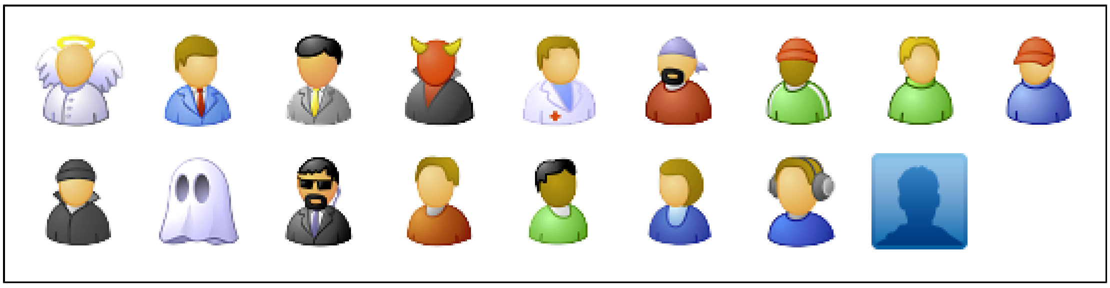
10

Revamped User Avatars

JIRA 4.3 introduces the new-look Atlassian avatars:

- User avatars are displayed as the icon for your profile, and to illustrate your comments on an issue. See the documentation on Adding a User Avatar.

We were fond of the old avatars, but think you'll agree they were looking a little dated by comparison:



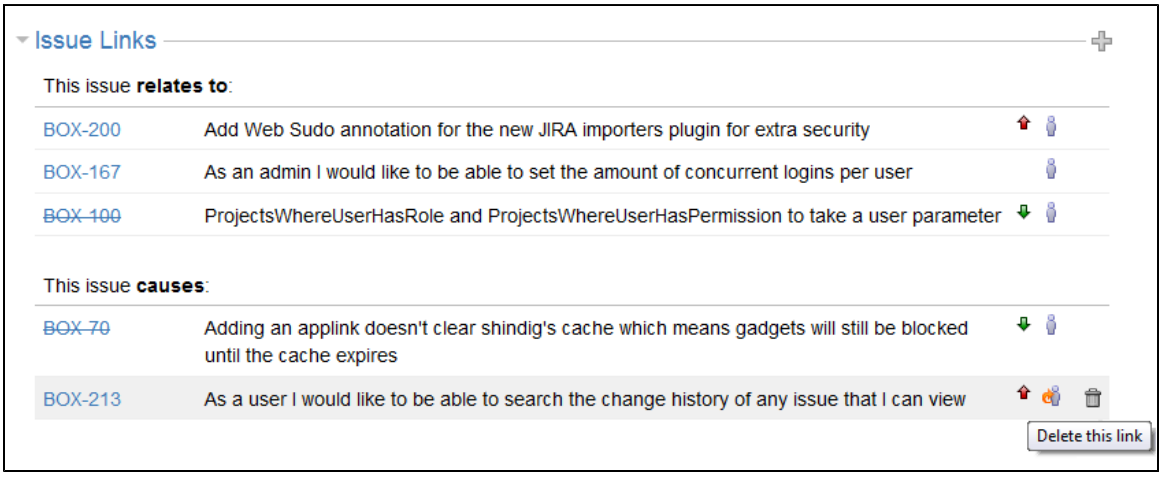
^Top

11

Improvements to Issue Links

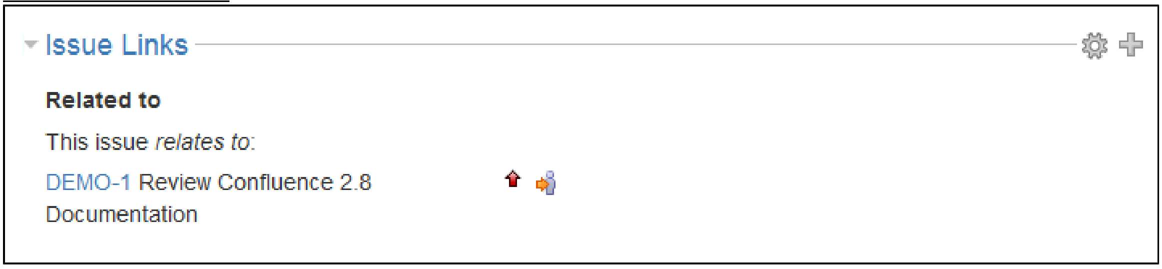
The 'Linked Issues' section of the 'View Issue' screen has been streamlined to make it both more compact and quicker to use. You can now delete links directly from this screen upon mouse hover:

***JIRA 4.3:** a linked issue*



Previously, to delete a link you needed to click the 'cog' icon (which took you to a separate screen):

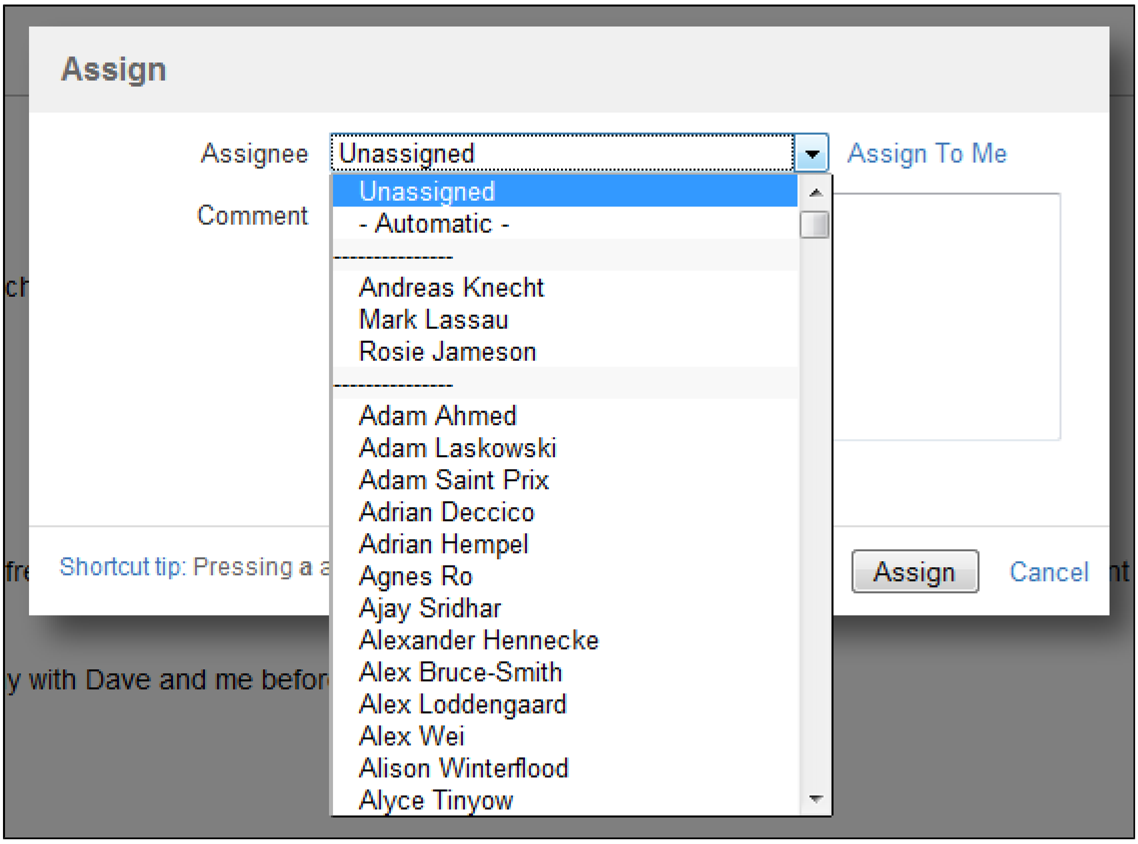
***JIRA 4.2:** a linked issue*



^Top

Remembered Assignees

JIRA now makes it easier to assign users to issues. The top of the assignee dropdown list shows the last five people you assigned issues to, as well as the reporter of the issue and all participants involved in the issue.

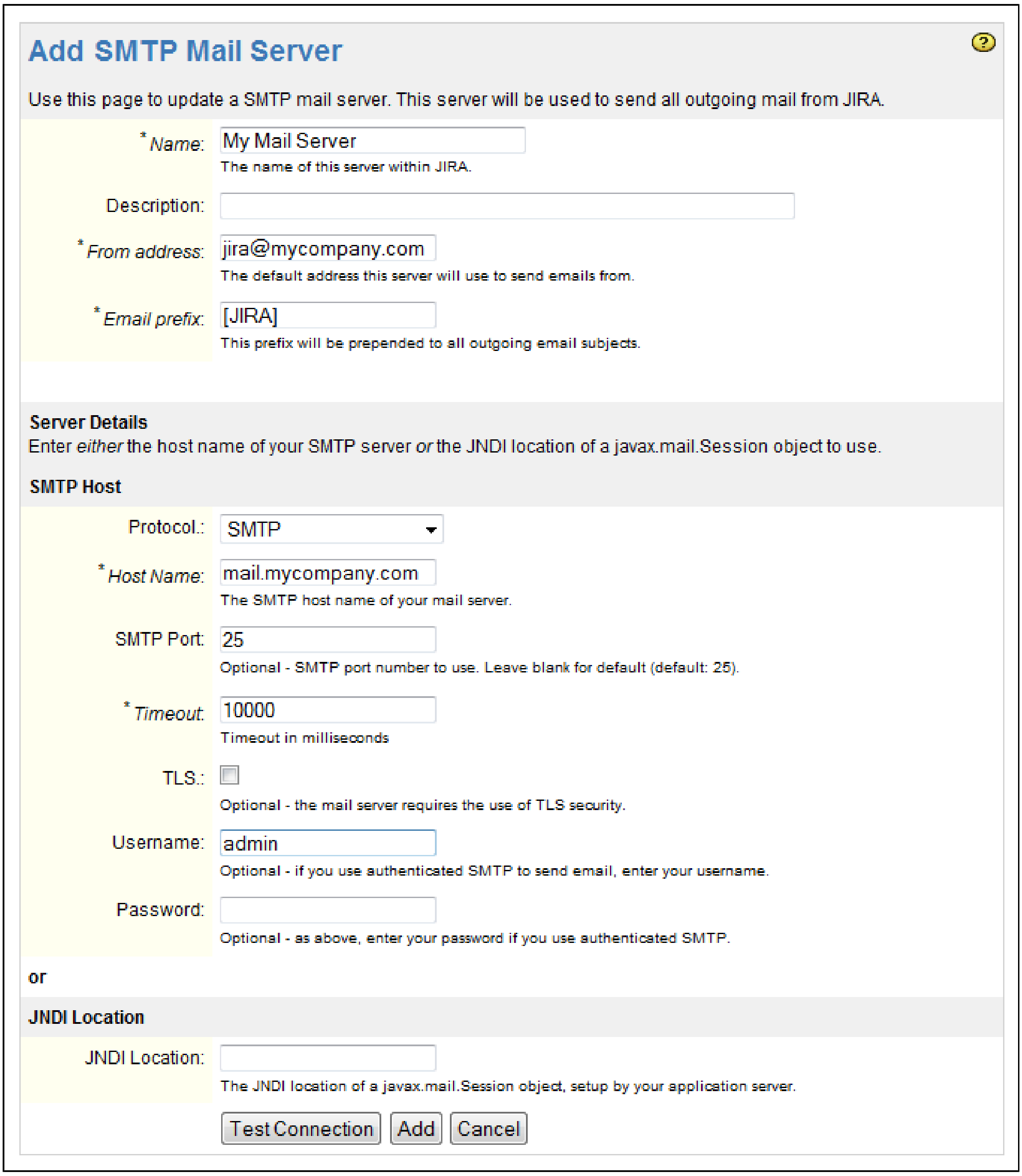


^Top

13

Mail Server Configuration Improvements

In JIRA 4.3, administrators can now test their mail server configuration with the "**Test Connection**" button.



A "**Timeout**" field has also been added.

^Top

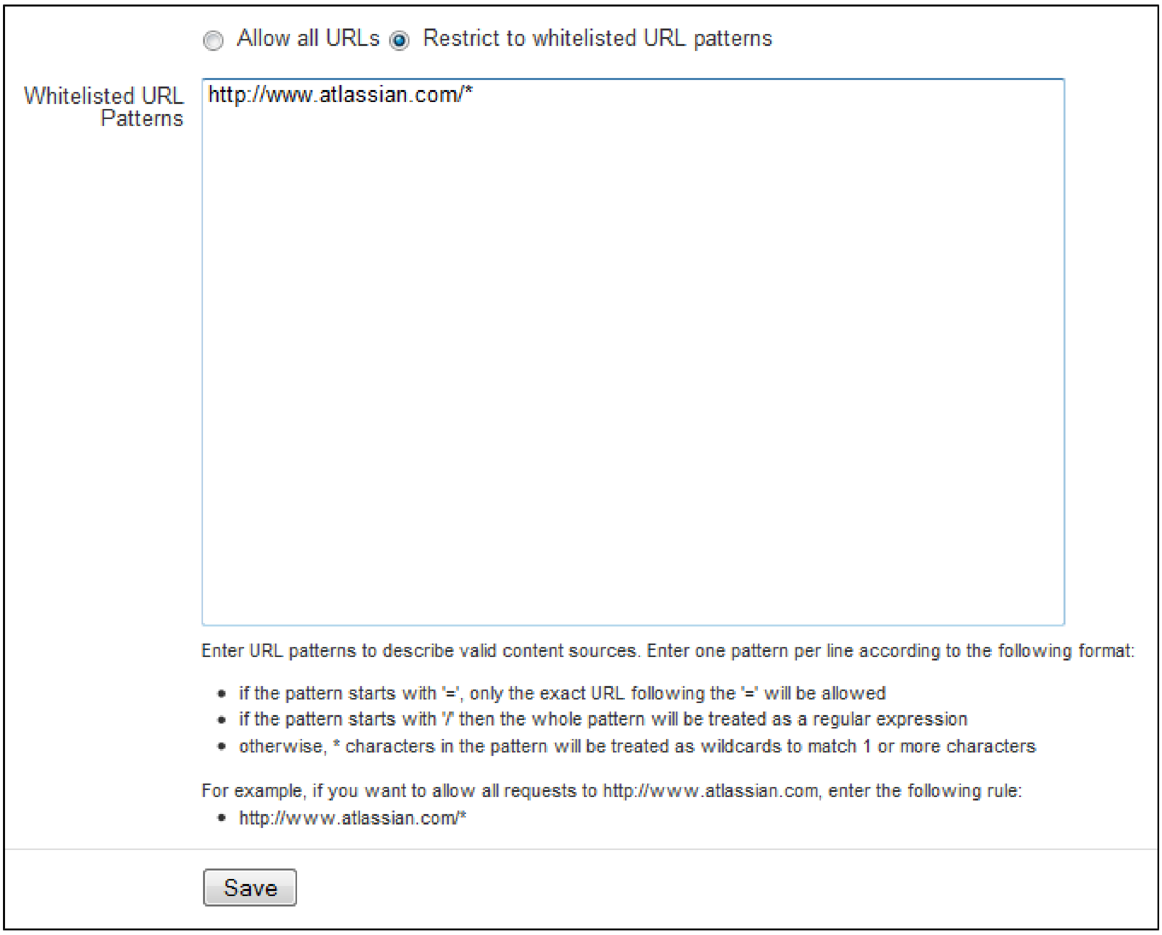
Security Enhancements

For enhanced security:

'Whitelist' for External URLs

For security reasons, an administrator may wish to limit the URLs from which users can source content that is displayed on their JIRA site (e.g. via an External Gadget).

JIRA 4.3 allows you to create a 'Whitelist' of URLs — or URL patterns — whose content you wish to make available to users of your JIRA site:



See the documentation for more details.

User Email Change is now Password Protected

Users will now be prompted to enter their password when changing their email address.

JIRA provides Secure Administration Sessions

Access to JIRA's administration features and functions is now password-protected.

See the documentation for more details.

^Top

Support Tools Plugin Now Bundled

We are very pleased to announce that the Atlassian Support Tools Plugin is now bundled with JIRA. The Atlassian Support Tools Plugin proves tools to help you troubleshoot issues with Atlassian products and get help from Atlassian Support.

See the documentation for more details.

^Top

Application Links: Connecting Applications Together

JIRA 4.3 includes Application Links, which makes it easy to connect your Atlassian applications together.

Application Links allows you to link your JIRA, Confluence, FishEye, Crucible, Bamboo and Subversion applications.

Linking two applications allows you to share information and access one application's functions from within the other. For example, if you linked a Confluence server to a JIRA server, you can create, find and insert JIRA issues directly onto a Confluence page or blog post using the new 'Insert JIRA Issue' option in Confluence 3.5.

You can even choose to associate your JIRA project with the 'entities' of other Atlassian applications (i.e. Confluence spaces, FishEye repositories or projects, Crucible projects, Bamboo projects, or other JIRA projects). The 'Configure Application Links' option on your JIRA project configuration screen, allows you to easily associate your JIRA project with these entities.

Applications Links is bundled with JIRA 4.3, Confluence 3.5 and FishEye 2.4.

See the documentation for more details.

^Top

17

Support for Chrome and Safari 5 Browsers

We are very pleased to announce that Chrome and Safari 5 are supported for use with JIRA 4.3.

^Top

18

REST API Improvements

We have improved discoverability of issues and projects through the REST API: there is now a `search` resource, which can be used to search for issues using JIRA Query Language (JQL). It is also possible to obtain a list of projects in a JIRA instance. Have a look at the reference documentation to see if the REST API offers the features that you want (let us know if not).

Clients that log in through the REST API can now determine when the login has been denied due to a CAPTCHA requirement: the HTTP header `X-Authentication-Denied-Reason` has all the necessary information.

^Top

Other Enhancements and Fixes

For the list of issues resolved in JIRA 4.3 so far, click here.

^Top

JIRA 4.3 Upgrade Guide

On this page:

- Upgrading from JIRA 4.2 to 4.3
  - General upgrade instructions
    - 'In-place database upgrade' is now the recommended method
  - Changes in `jira-application.properties`
  - Changes in `seraph-config.xml` and Crowd Integration
  - Gadgets can only access External URLs that are on the Whitelist
  - Changes to user management in JIRA
    - Upgrade considerations
      - For customers with internally managed users
      - For customers using LDAP for authentication
      - For customers connecting to Crowd for user management
      - For customers with a pre-Confluence 3.5 installation that uses JIRA for user management (IMPORTANT!)
      - For customers who have written a custom provider for user management
      - For customers with non-standard configurations
    - Other considerations
      - Duplicate groups MUST BE DELETED before upgrading
      - Database tables have changed
      - Usernames are not case sensitive
      - Passwords no longer imported when importing a project
      - com.opensymphony.user.UserManager is deprecated

                - Migrating to LDAP user management
                    - Considerations
                - Migrating from an Internal Directory with LDAP Authentication to a full LDAP directory.
                    - Background
                    - What happens when upgrading to JIRA 4.3
                    - Migrating to full LDAP
                        - Migrating from *Internal with LDAP authentication* to LDAP
                        - Migrating from *Internal Directory* to LDAP
                - Known LDAP issues when upgrading to JIRA 4.3
            - Additional JARs required when running JIRA WAR on Tomcat
                - Tomcat 5
                - Tomcat 6
            - Upgrading JIRA connected to a MySQL database
            - Upgrading JIRA running on a 64-bit Windows operating system
            - GreenHopper
            - Updated Toolkit Plugin for JIRA 4.3
            - Upgrading from JIRA 4.2 with the Universal Plugin Manager installed
            - Other Plugins
            - Older Browsers are no longer supported
            - Unsupported Modes
            - Other Known Issues
        - Upgrading from JIRA 4.1 and Earlier

Upgrading from JIRA 4.2 to 4.3

General upgrade instructions

Please follow the instructions in the general upgrading JIRA documentation, as well as the JIRA 4.3-specific instructions in the sections below. The general upgrade guide contains important tasks that are essential for getting your upgraded JIRA instance to work correctly (e.g. merging `jira-application.properties` customisations from the old instance to the upgraded instance).

'In-place database upgrade' is now the recommended method

JIRA 4.3 now officially supports 'in-place database upgrades'. This method (which is now the recommended approach for upgrading JIRA) requires much less downtime during the JIRA upgrade process, especially if you operate a large JIRA installation. You no longer need to export your existing JIRA data to an XML backup and then restore this data into your new JIRA version. Instead, we now support simply 'pointing' your new version of JIRA at your existing JIRA database!

Changes in `jira-application.properties`

If you are merging your old and new configuration files, as described in the Upgrade Guide, the following tables list the changes which have been made to the `jira-application.properties` file in JIRA 4.3.

The purpose of each *new* property is documented in the `jira-application.properties` file itself.

New properties in `jira-application.properties`
`jira.websudo.is.disabled = false`
`jira.websudo.timeout = 10`

Changes in `seraph-config.xml` and Crowd Integration

When merging your old and new configuration files, as described in the Upgrade Guide, please take extra care with the `seraph-config.xml` file, since this file contains a few changed entries in JIRA 4.3.

If you simply copy your old `seraph-config.xml` to your new 4.3 installation, then:

- Due to Crowd integration changes in JIRA 4.3 (reflected in `seraph-config.xml`), your users may have authentication problems when attempting to log in to JIRA.
- If any user attempts to view a JIRA page URL which they do not have permission to access, JIRA will not explicitly indicate a permission access problem.

The following table lists the changes to the `seraph-config.xml` file in JIRA 4.3:

Elements in `seraph-config.xml` prior to JIRA 4.3	Change in JIRA 4.3
`<param-name>login.url</param-name>` `<param-value>/login.jsp?os_destination=${originalurl}</param-value>`	`<param-value>/login.jsp?os_` `<param-value>/login.jsp?per`
`<param-name>invalidate.session.exclude.list</param-name>` `<param-value>ASESSIONID</param-value>`	`<param-value>ASESSIONID</pa` `<param-value>ASESSIONID,jir`

<table>
<tr>
<td>The following section
<pre>
<!-- CROWD:START - If enabling Crowd SSO integration uncomment the
following
    JIRAAuthenticator and comment out the DefaultAuthenticator below -->
<!--
<authenticator class=
    "com.atlassian.crowd.integration.seraph.v22.JIRAAuthenticator"/>
-->
<!-- CROWD:END -->

<!-- CROWD:START - The authenticator below here will need to be commented
out
    for Crowd SSO integration -->
<authenticator class=
    "com.atlassian.jira.security.login.JiraOsUserAuthenticator"/>
<!-- CROWD:END -->
</pre></td>
<td>Has been changed in JIRA 4.3 to
<pre>
<!-- CROWD:START - If enabl
    SSOSeraphAuthenticator
<!--
<authenticator class=
    "com.atlassian.jira.sec
-->
<!-- CROWD:END -->

<!-- CROWD:START - The auth
    for Crowd SSO integrati
<authenticator class=
    "com.atlassian.jira.sec
<!-- CROWD:END -->
</pre></td>
</tr>
<tr>
<td><code><interceptor class="com.atlassian.jira.portal.PortalPageInterceptor"/></code></td>
<td>Removed as this <code><interceptor></code></td>
</tr>
</table>

Gadgets can only access External URLs that are on the Whitelist

Due to a security enhancement in JIRA 4.3, any external gadgets (or gadgets that make requests to external URLs) will be disabled until you add the relevant external URLs to your Whitelist.

When you first log in to JIRA 4.3 as an administrator, a message will be displayed at the top of the screen, containing a link to the 'Whitelist' page. This page will also list your external gadgets. You can either delete these gadgets, or confirm that you wish to add the relevant external URLs to your whitelist.

For more details, please see Configuring the Whitelist.

Changes to user management in JIRA

The way users and groups are stored and accessed in JIRA has been totally rewritten in Release 4.3. This has provided a number of additional capabilities, mainly the ability to use an LDAP server (including Microsoft Active Directory) for all user information.

When you start up JIRA 4.3, the upgrade process will automatically upgrade your user data. The sections below describe the upgrade considerations for each supported configuration type.

Upgrade considerations For customers with internally managed users

For users that are not currently connecting to Crowd or LDAP then there are no actions required on upgrade.

For customers using LDAP for authentication

If you had previously connected JIRA to an LDAP server for authentication (using the standard method), then this configuration will automatically be acquired by JIRA when upgrading to JIRA 4.3. However, the following must be observed:

- Prior to JIRA version 4.3, the `osuser.xml` file was used to configure the connection to an LDAP server. For JIRA 4.3 to acquire these configurations automatically, your existing `osuser.xml` file **MUST be available to JIRA 4.3** before it is started.
- If some of your users' passwords are stored in an LDAP directory but other users' passwords are stored in JIRA's internal user directory, you should **not** upgrade at this time (see JRA-23858). Please wait for JIRA 4.3.1.
- Regardless of which method you use to upgrade JIRA, when migrating your existing JIRA configurations to your new JIRA installation at the configuration migration step of either the 'in-place database upgrade' or migration procedures, ensure that you copy the `osuser.xml` file from the `atlassian-jira/WEB-INF/classes` directory of your old installation to the `atlassian-jira/WEB-INF/classes` directory of the new installation.

If you upgrade JIRA without the osuser.xml file in place, then the upgrade will proceed, but will not configure a connection to LDAP and there is no way to connect the migrated users to work with authentication via LDAP, without performing the upgrade again from a backup of JIRA or direct manipulation of the database, which is unsupported by Atlassian.

For customers connecting to Crowd for user management

JIRA 4.3 will only connect to Crowd 2.1 or higher. If you are using an earlier version of Crowd and wish to use this Crowd configuration in your upgraded JIRA 4.3 installation, you must upgrade Crowd to version 2.1 before you upgrade JIRA.

After upgrading JIRA, you will need to wait until a synchronisation task has copied your user and group information from Crowd to JIRA's internal cache before you can log in to JIRA. If a JIRA user attempts to log in to JIRA before this synchronisation task has finished, the user's authentication will fail.

If you had previously connected JIRA to a Crowd server (using the standard method), then this configuration will automatically be acquired by JIRA when upgrading to JIRA 4.3. However, the following must be observed:

- Prior to JIRA version 4.3, the `osuser.xml` and `crowd.properties` files were used to configure the connection to Crowd. For JIRA 4.3 to acquire these configurations automatically, your existing `osuser.xml` and `crowd.properties` files **MUST be available to JIRA 4.3** before it is started.

- Regardless of which method you use to upgrade JIRA, when migrating your existing JIRA configurations to your new JIRA installation at the configuration migration step of either the 'in-place database upgrade' or migration procedures, ensure that you copy the `osuser.xml` and `crowd.properties` files from the `atlassian-jira/WEB-INF/classes` directory of your old installation to the `atlassian-jira/WEB-INF/classes` directory of the new installation.

*If you upgrade JIRA without the osuser.xml file in place, then the upgrade will **NOT** proceed. JIRA has a table, EXTERNAL_ENTITIES, that contains some information regarding users maintained in a Crowd server. If there are entries in this table, but no osuser.xml file present, then the upgrade will stop and write a message to the log file.*

For customers with a pre-Confluence 3.5 installation that uses JIRA for user management (IMPORTANT!)

If you are a customer with a Confluence installation that uses JIRA for user management, please **do not upgrade to JIRA 4.3 *until you have first upgraded to Confluence 3.5***.

JIRA 4.3 possesses a significantly different database schema and exposes the Crowd REST interface, which Confluence will depend on for continued JIRA user management. If you upgrade to JIRA 4.3 before upgrading to Confluence 3.5, your Confluence users will no longer be able to log in until you upgrade to Confluence 3.5.

For customers who have written a custom provider for user management

Custom directory types are **not** possible and not supported in JIRA 4.3 and later.

Please see if one of the following solutions will work for you:

- If you have written a custom provider to provide LDAP support for JIRA 4.2 or earlier, you may no longer need your custom directory connector. Please check the supported LDAP schemas to see if you can use the new LDAP connectors supplied with JIRA 4.3.
- If you have written a custom provider to support nested groups, you can now use the new directory connectors supplied with JIRA 4.3. See Managing Nested Groups.
- If you have written a custom provider to connect to your own database, please consider loading the data into JIRA via the REST API instead. If you need to use an external authentication source, consider migrating to a Seraph authenticator.

If you need to keep the custom directory connection, please consider whether Atlassian Crowdmeets your requirements. See the documentation on developing a custom directory connector for Crowd.

For customers with non-standard configurations

If you have a non-standard configuration and the upgrade has stopped, please contact http://support.atlassian.com.

Other considerations Duplicate groups MUST BE DELETED before upgrading

If your JIRA instance has two groups that have the same name, but differ only by case (eg "sydney" and "Sydney"), the JIRA 4.3 upgrade will fail. You need to remove any duplicates in your current JIRA instance before upgrading. That is, you should delete one of the groups and move any users and permissions to the other group or to a new group.

(Note: There will not be a problem if your JIRA instance is connected to an external Crowd instance, and the duplicate groups are in Crowd or in an LDAP directory connected to JIRA via Crowd.)

Database tables have changed

For customers who have written programs or used other tools that access the JIRA database directly, the tables used to hold user data have changed.

Old table	New table	Information about new table
userbase	cwd_user	Holds information about the user. This now includes full name and email address.
groupbase	cwd_group	Hold information about groups.
membershipbase	cwd_membership	

These tables are indexed by directory and contain both details of all local users and groups and also cached details of external users and groups.

Usernames are not case sensitive

In version 4.3, JIRA makes no distinction between two or more usernames that only differ by case. Furthermore, username searches are case-insensitive. These behaviours are in compliance with the LDAP specification.

In version 4.2 and earlier, JIRA's handling of usernames is case-sensitive. While JIRA's user interface prevents the creation of usernames containing upper-case characters, the use of data migration or other tools may lead to a JIRA database containing mixed-case usernames.

During migration, if two users exist whose usernames differ only by case, one user will be dropped and an entry placed in the log file to record this.

JIRA's behaviour has always been undefined when two users had usernames differing only by case. There may be some side effects of the dropping of the second user including:

- A user may not be able to log in because their password was attached to the dropped user. The user will need to reset their password.

Passwords no longer imported when importing a project

When a single project is imported (see Restoring a Project from Backup), users who do not exist already in the target system are created. In releases 4.2 and earlier of JIRA, the users' passwords were also set to the passwords in the exported XML file. This is no longer the case. Users will be given randomly allocated passwords and will need to use the 'Forgotten password' link to have their passwords reset.

Note: this only relates to the 'Project Import' feature, that is, when you import a single Project from a second JIRA instance into this JIRA instance. When doing a normal full import (see Restoring Data), the passwords are preserved as usual.

com.opensymphony.user.UserManager is deprecated

In releases 4.2 and earlier of JIRA, the com.opensymphony.user.UserManager is made available in the velocity context for use by email notification templates. The use of this manager is deprecated and will be removed in a future JIRA release.

Migrating to LDAP user management

Some customers may wish to migrate to managing their users in LDAP. This may particularly appeal to customers whose JIRA instance is internal, and all users are already managed in the company LDAP Directory or Microsoft Active Directory.

Considerations

- **Are user names the same?**
  - If users have the same name in the LDAP directory as they do in the internal JIRA directory, then you can simply configure a new LDAP directory and then disable the internal directory. This would also apply if you are currently using LDAP authentication.
  - If users have different names in the LDAP directory to that in JIRA, then you could configure an LDAP directory to be used for new users and leave the internal directory in place for current JIRA users.

Migrating from an Internal Directory with LDAP Authentication to a full LDAP directory. Background

In versions of JIRA prior to 4.3 it was possible to authenticate users against an LDAP directory, but you needed to add the users, groups and memberships manually in JIRA. In JIRA 4.3, support was added that allows you to directly use an LDAP directory for users groups and memberships as well as authentication.

What happens when upgrading to JIRA 4.3

If you were using an LDAP directory for authentication and your osuser.xml configuration file is available to JIRA during the upgrade task then JIRA will create 2 user directory configuration entries:

- An Internal Directory with Delegated LDAP, this is where all your users will be defined.
- An Internal Directory, this will not contain any users, but is required. More about this later.

If the osuser.xml file is not available during the upgrade then JIRA will create 1 user directory configuration entry:

- An Internal Directory, this is where all your users will be defined. Note: The users' passwords in this directory will not be set and no users will not be able to login until you reset the passwords.

Note: If you wish to continue to use LDAP for authentication only, then ensure the osuser.xml is available during the upgrade.

Migrating to full LDAP

Ensure the LDAP directory contains the necessary JIRA Groups and Memberships. All users that are going to use JIRA must belong to a group that has JIRA Use permission, typically "jira-users".

If you cannot add Groups and memberships to your LDAP server, then you can still migrate to LDAP but will need to set the privileges to "READ-ONLY with Local Groups". Once you have completed the migration described below, you will then need to manually add all the users to the required groups. See Managing Groups.

Go to Administration/User Directories and see what directories are configured.

Migrating from *Internal with LDAP authentication* to LDAP

The steps are:

- Add a user to the Internal Directory that has System Administrator privileges.
  - Reorder the directories so that the Internal Directory is first in the list.
  - Add a new user and give that user System Administrator privileges. New users are always added to the first directory that is not READ-ONLY.
- Log out and back in to JIRA as the user you just added.
- Add a new LDAP directory to the list of User Directories.
- Wait for the LDAP directory to be fully synchronised for the first time. This may take some time depending upon the number of users and speed of the LDAP server and your connection to it.
- Re-order the directories so that the Internal Directory with LDAP authentication is at the bottom of the list and the new LDAP directory is at the top of the list.
- Logoff
- Login as a user with System Administrator privileges.
- Go to Administration / User Browser and search for the user you logged in as. The user should show as coming from the LDAP directory you just added.
- Disable the Internal Directory with LDAP authentication.

Once you have completed testing you may delete the Internal Directory with LDAP authentication.

Migrating from *Internal Directory* to LDAP

The steps are:

- Log in to JIRA with as a user with System Administrator privileges.
- Add a new LDAP directory to the list of User Directories.
- Wait for the LDAP directory to be fully synchronised for the first time. This may take some time depending upon the number of users and speed of the LDAP server and your connection to it.
- Re-order the directories so that the new LDAP directory is at the top of the list.

At this stage all the users will be in both the Internal and LDAP directory. There is no simple mechanism to remove the users from the internal directory at this time. If you wish, you can delete these users by SQL. **Manipulating the database with SQL is not supported, and is at your own risk. TAKE A BACKUP FIRST.**

Known LDAP issues when upgrading to JIRA 4.3

Page: Local users can't log in but LDAP users can after upgrade to v4.3 (JIRA Knowledge Base)

Page: 'Sorry, an error occurred trying to log you in - please try again' Message when Trying to Login in JIRA 4.3 (JIRA Knowledge Base)

Additional JARs required when running JIRA WAR on Tomcat

Tomcat does not come with some libraries required to run JIRA. These include database libraries that must be in the Tomcat classpath. You will need to add these libraries to your `tomcat/lib` directory

Tomcat 5

- http://www.atlassian.com/software/jira/downloads/binary/jira-jars-tomcat-distribution-4.3-rc1-tomcat-5x.zip

- If you are upgrading a previous JIRA installation, you will need to delete older versions of those libraries that you previously added to `tomcat/lib`.

Tomcat 6

- http://www.atlassian.com/software/jira/downloads/binary/jira-jars-tomcat-distribution-4.3-rc1-tomcat-6x.zip

- In particular, to prevent exceptions related to logging, please ensure that `commons-logging-.jar`, `slf4j.jar` and `log4j-1.2.15.jar` are present in Tomcat's /lib/ directory. Also ensure that these files are not present in Tomcat's webapps/jira/WEB-INF/lib directory.
- If you are upgrading a previous JIRA installation, you will need to delete older versions of those libraries that you previously added to `tomcat/lib`.

Upgrading JIRA connected to a MySQL database

If your JIRA installation is connected to a MySQL database that uses the MyISAM database engine (which is not recommended for JIRA), some table indexes may not be created successfully upon upgrading to **JIRA 4.3.x**.

Before upgrading, we recommend switching your MySQL database for JIRA over to the InnoDB database engine.

> **Avoid using MyISAM** as the storage engine for your JIRA database as this can lead to data corruption - JRA-24124.

Upgrading JIRA running on a 64-bit Windows operating system

If you run JIRA on a 64-bit Windows operating system, be aware that the version of Apache Tomcat (6.0.20) bundled with JIRA Standalone cannot run as a Windows service on a 64-bit JDK/JRE (see JRA-12965).

If you need to run JIRA as a Windows service on a 64-bit Windows operating system, we recommend installing the JIRA WAR-EAR distribution on Apache Tomcat version 6.0.26 or greater.

GreenHopper

Please be aware that only GreenHopper 5.5 (and later) is compatible with JIRA 4.3.

Updated Toolkit Plugin for JIRA 4.3

If you use the Toolkit Plugin with JIRA, you will need to update it to at least version 0.17 for compatibility with JIRA 4.3.

Upgrading from JIRA 4.2 with the Universal Plugin Manager installed

JIRA 4.2 supports the universal plugin manager. If you installed this plugin into your JIRA 4.2 installation, we recommend removing it from your JIRA Home directory while upgrading to JIRA 4.3 or later, as the presence of this plugin may cause problems when JIRA 4.3 is started.

When upgrading JIRA, remove this plugin *before* step 3.5 of the 'in-place database upgrade' or migration procedures.

The universal plugin manager plugin is located at:

```
<JIRA-home-directory>/plugins/installed-plugins/atlassian-universal-plugin-manager-plugin-X.Y.Z.jar
```

Other Plugins

JIRA 4.3 introduces several changes that may break existing plugins which are not bundled with JIRA.

If you have a developed a plugin, then please read the Plugin Developer Notes for JIRA 4.3 guide. This guide describes changes in JIRA 4.3 which may affect the compatibility of your plugin with JIRA 4.3.

If you are using a plugin developed by a third party, please check with the plugin's author to see if the plugin has been tested with JIRA 4.3.

Older Browsers are no longer supported

As mentioned on our End of Support Announcements for JIRA page, from JIRA 4.3, we will no longer provide support for the following platforms with JIRA:

- Safari 4 and Firefox 3.0.x browsers, as mentioned in Deprecated Web Browsers for JIRA announcement.

Please see the Supported Platforms for a list of supported browsers, databases and application servers.

Unsupported Modes

JIRA does not support running in multitenant mode.

Other Known Issues

Before you begin the upgrade, please check for known issues. Sometimes we find out about a problem with the latest version of JIRA after we have released the software. In such cases we publish information about the known issues in the JIRA Knowledge Base. Please check for known issues and follow the instructions to apply any necessary patches.

If you encounter a problem during the upgrade and cannot solve it, please create a support ticket and one of our support engineers will help you.

Upgrading from JIRA 4.1 and Earlier

In addition to the points listed above, please read the Important Version-Specific Upgrade Guides for every version of JIRA you are skipping.

JIRA 4.3 now officially supports 'in-place database upgrades', when upgrading from JIRA 4.0.0 or later.

This method (which is now the recommended approach for upgrading JIRA) requires much less downtime during the JIRA upgrade process, especially if you operate a large JIRA installation. You no longer need to export your existing JIRA data to an XML backup and then restore this data into your new JIRA version. Instead, we now support simply 'pointing' your new version of JIRA at your existing JIRA database!

Plugin Developer Notes for JIRA 4.3

On this page:

- Introduction
- I18nBean no longer in the PICO container
- GadgetRequestContextFactory no longer a host component
- CacheManager deleted
- `ApplicationPropertiesImpl` default constructor has been removed
- Accessing delegators, connections and datasources in OfBiz
  - Delegator and datasource names will change in a future release
  - EntityConfigUtil refactoring
- Embedded Crowd
  - Approach to compatibility
  - Important changes
- auth-refresh required for Gadget modules
  - Extension PICO Containers are no longer supported
- New way to include browser-specific CSS
- WebSudo - Temporary Administrative Access
- JavaScript Reorganisation
    - JavaScript Namespace Changes
    - JavaScript File Changes

Introduction

JIRA 4.3 introduces several changes that may break existing plugins which are not bundled with JIRA. For more details please see the API Change documentation.

If you are using or have been involved in the development of such a plugin, it may need to be updated to work with JIRA 4.3. Please read through the information below to see if any of this content is relevant to your plugin.

If you are using a plugin developed by a third party, please check with the plugin's author to see if the plugin has been tested with JIRA 4.3.

This is not the complete list of changes for JIRA 4.3 — It only describes changes in JIRA 4.3 that will impact plugin developers.

I18nBean no longer in the PICO container

The I18nBean is no longer available for dependency injection. I doubt many people used it anyway, since it was broken if you tried to use it. (The bean didn't contain any keys defined in plugins.) As we move towards a translation-as-plugin and reloadable-plugin world the problem was just going to get worse. The current, correct way is to have an I18nHelper.BeanFactory injected and call getInstance() on it. This has the additional benefit of caching (only one object per-locale) which minimizes resource-bundle scanning.

GadgetRequestContextFactory no longer a host component

Previously there were two GadgetRequestContextFactory implementations being provided: one by JIRA directly (i.e. a "host component") and one by the gadget-renderer-plugin. The host component has been removed. If you are using a GadgetRequestContextFactory you will need to ensure that your atlassian-plugin.xml has a **component-import** statement so that OSGi gets wired up properly.

CacheManager deleted

The JIRA issue cache has not been in use for quite some time, and the `CachingIssueManager` has not updated the cache for a while. This has now been completely removed out of JIRA. Previously, it may have been necessary to depend on this class to flush it, or call ManagerFactory.getCacheManager() to flush it, after certain operations. This has been a noop for quite some time, and is no longer necessary.

`ApplicationPropertiesImpl` default constructor has been removed

As of JIRA 4.3, the default parameterless constructor of the `ApplicationPropertiesImpl` class has been removed. This class was never intended to be instantiated directly from within plugin code. If you need to get an instance of the `ApplicationProperties` component, please use one of the following approaches:

- dependency injection within plugin components,
- the `ComponentManager.getComponent()` method, or
- the `ComponentLocator` injectable component

All of these approaches are compatible with versions of JIRA from 4.0.

Accessing delegators, connections and datasources in OfBiz

Delegator and datasource names will change in a future release

Calls to the following methods:

- `org.ofbiz.core.entity.GenericDelegator.getGenericDelegator("default");`
- `org.ofbiz.core.entity.ConnectionFactory.getConnection("defaultDS");`

are deprecated, and will break in a future version of JIRA. It should still work in JIRA 4.3, but it is planned that this will break in JIRA 4.4. The correct generic delegator can be injected, or if static access is needed, `com.atlassian.core.CoreFactory.getGenericDelegator()` can be used. To get a connection, JIRA has added a new class called `com.atlassian.jira.ofbiz.DefaultOfBizConnectionFactory`. This can be used using the following code:

```
new DefaultOfBizConnectionFactory().getConnection();
```

EntityConfigUtil refactoring

`org.ofbiz.core.entity.EntityConfigUtil` has been significantly refactored. To access it, call `EntityConfigUtil.getInstance()`. Accessing `DatasourceInfo` should be done using the `getDatasourceInfo()` method on the above mentioned `DefaultOfBizConnectionFactory`.

Embedded Crowd

In JIRA v4.3 we have introduced a new User Management subsystem. Please refer to the JIRA 4.3 Upgrade Guide for general information.

This means that JIRA no longer uses the OSUser framework for user management. Instead it is now using modules taken from the Atlassian Crowd application, and hence this new subsystem is commonly referred to as "Embedded Crowd".

Approach to compatibility

In order to avoid compatibility and upgrade headaches for plugins, we have taken the following measures to transition the change as smoothly as possible:

A binary compatible copy of OSUser has been left in place

This means that existing code using OSUser Objects should continue to work.

The implementation of OSUser has been altered to call through to the underlying "embedded Crowd" user management layer.

The OSUser classes will remain for at least two versions (JIRA 4.3 and 4.4), but will be removed sometime after that.

OSUser's User and Group objects have been made to implement the new User and Group interfaces

```
public class User extends Entity implements com.atlassian.crowd.embedded.api.User

public class Group extends Entity implements java.security.acl.Group,
com.atlassian.crowd.embedded.api.Group
```

This is useful because it means you can use the old User (or Group) object anywhere that is expecting the new User (or Group) object, which allows you to migrate your code piece by piece instead of trying to do it all in one go.

JIRA API methods that accept OSUser classes as input will remain but are deprecated

These methods will be removed when OSUser is removed.

For instance,

```
IssueService.getIssue(com.opensymphony.user.User user, Long issueId)
```

is now deprecated in favour of

```
IssueService.getIssue(com.atlassian.crowd.embedded.api.User user, Long issueId)
```

.

JIRA API methods that return OSUser classes as output will remain but are deprecated.

For instance,

```
GroupManager.getGroup(String groupname);
```

will continue to return `com.opensymphony.user.Group`, but it is deprecated and replaced by

```
GroupManager.getGroupObject(String groupname);
```

which returns `com.atlassian.crowd.embedded.api.Group`.

JIRA Plugin interfaces

Interfaces for plugin points sometimes include a User object in them (eg JqlFunction).

In these cases, we will leave the OSUser object in the short term for the sake of compatibility, and the interface will be altered when OSUser is removed.

Non-API Classes

Classes that are not considered part of JIRA's public API (Implementation classes) may be converted to the new User object at any time. Plugin developers should be avoiding these anyway.

New methods

New methods in API will only use the new User/Group interfaces.

Converting between old and new User objects.

The "old" User object has been made to implement the new User interface, and so no conversion is required in this direction.

You should not need to convert from the new to the old user Object very often, but if you do a Utility class `OSUserConverter` is available.

Important changes Don't use `com.opensymphony.user.UserManager`

This is a static factory class that implemented OSUser. It is supported in the short term but will be removed.

Use JIRA's dependency-injected Managers and Services instead:

- com.atlassian.jira.user.util.UserManager
- UserUtil (an extended UserManager)
- UserService
- GroupService
- GroupManager

Changes to the User object.

User-names are now case-insensitive. This is to reflect the way user-names are treated by LDAP.

Previously user-names were case-sensitive but forced to be all lower-case, so this change should not cause problems.

- getEmail() is deprecated to be replaced by getEmailAddress()
- getFullName() is deprecated to be replaced by getDisplayName()

DirectoryID

JIRA is now capable of connecting to multiple "User Directories" at once. A User Directory might be an LDAP server, a Crowd Server, or the "Internal Directory" (that is, users stored in JIRA's DB).

In order to tell which directory a User came from, there is a DirectoryID added to the User object. This means that in theory, you can have two users from two directories with the same username. (Note that this should be considered a rare and unusual situation — documentation will recommend that users try to avoid this).

For this reason, the username and directoryID are both considered in `User.equals()`.

User Properties

OSUser allows you to store custom properties in a `PropertySet` against a User. This will continue to be supported, but the `PropertySet User.getPropertySet()` method is deprecated. Use the `UserPropertyManager` to get user properties.

auth-refresh required for Gadget modules

You need to add the `auth-refresh` feature to your Gadget module preferences inside the `gadget.xml` file:

```
<Optional feature='auth-refresh' />
```

This enables your gadget to refresh its authentication token, which allows it to make requests. If you don't include the `auth-refresh` feature, a JavaScript error will occur if your gadget makes a request after 30 minutes of inactivity.

Extension PICO Containers are no longer supported

Please note that from JIRA 4.3 onwards, the use of `jira.extension.container.provider` in jira-application.properties is no longer supported.

New way to include browser-specific CSS

Previously when targeting a specific browser (e.g. IE6/IE7/IE8), you would put all CSS styles in a separate stylesheet and rely on IE-conditional comments to restrict which browsers received the files.

In JIRA 4.3 we have added some JavaScript which adds classes to the HTML tag on page load. This means that you can now put all browser-specific CSS fixes in the main stylesheet near related styles. Having styles in one file increases maintainability, and reduces the number of requests — which helps pages load faster.

Prior to 4.3 you would put IE styles in the IE stylesheet and prefix with * or _ depending on the browser. Now you can use the following:

- .msie (all versions of IE)
- .msie-7 (just IE7)
- .msie-8 (just IE8)
- .msie-gt-7 (IE8 and IE9)
- .msie-lt-8 (IE7, IE6, IE5.5, etc)
- .mozilla (all versions of Firefox. There are no version-specific options like IE)
- .webkit (all versions of Chrome/Safari. There are no version-specific options like IE)
- .opera (note: not a supported browser)

WebSudo - Temporary Administrative Access

We have added an extra layer of authentication to the administration actions in JIRA. If your plugin adds actions to the administration area, that is Actions that should only be for accessible by users with the admin or sys-admin roles, the Action should be annotated with WebSudoRequired on the class (not the action or package). If your administrative pages are not actions you can use the WebSudoManager following the instructions at Adding WebSudo Support to your Plugin.

JavaScript Reorganisation

To improve the consistency of JavaScript resources in JIRA 4.3, the namespaces of various JavaScript objects and functions have been changed and some JavaScript files have been moved or renamed.

JavaScript Namespace Changes

The table below lists all namespace changes to JavaScript objects and functions in JIRA 4.3. If your plugin uses JavaScript which refers to any of these objects and functions by their old namespace, you will need to update these in your plugin to the new namespace.

Old namespace	New namespace
jira.app.issue	JIRA.Issue
jira.app.issuenavigator	JIRA.IssueNavigator
jira.app.issuenavigator.shortcuts	JIRA.IssueNavigator.Shortcuts
AJS.DropDown	AJS.Dropdown
jira.widget.dropdown	JIRA.Dropdown
AJS.containDropdown	JIRA.containDropdown
AJS.SelectMenu	AJS.DropdownSelect
AJS.SecurityLevelMenu	AJS.SecurityLevelSelect
AJS.QueryableDropdown	AJS.QueryableDropdownSelect
AJS.IssuePicker	JIRA.IssuePicker
AJS.LabelPicker	JIRA.LabelPicker
jira.widget.favourite.Picker	JIRA.FavouritePicker
AJS.FlexiPopup	JIRA.Dialog
AJS.FormPopup	JIRA.FormDialog
AJS.LabelsPopup	JIRA.LabelsDialog
AJS.IssueActionsPopup	JIRA.IssueActionsDialog
AJS.UserProfilePopup	JIRA.UserProfileDialog
jira.app.attachments.screenshot.ScreenshotWindow	JIRA.ScreenshotDialog
jira.widget.autocomplete	JIRA.AutoComplete
jira.widget.autocomplete.JQL	JIRA.JQLAutoComplete
jira.ajax	JIRA.SmartAjax
jira.app.wikiPreview	JIRA.wikiPreview
jira.app.userhover	JIRA.userhover
jira.app.session.storage	JIRA.SessionStorage
jira.xsrf	JIRA.XSRF

JavaScript File Changes

Along with the JavaScript namespace changes (above), several JavaScript files have been moved or renamed. Any plugins that load JIRA's JavaScript files directly may encounter "Resource not found" warnings due to this change.

Instead of loading these files directly, we recommend using the Web Resource framework to include JIRA's JavaScript files with plugins, as this method is backwards-compatible with JIRA 4.2.

```
<web-resource key="my-resource">
  <dependency>jira.webresources:jira-global</dependency>
</web-resource>
```

JIRA 4.2 Release Notes

21 October 2010

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

JIRA 4.2 gives you a few extra minutes of precious time every day, by providing the ability to triage issues directly from the Issue Navigator without you having to open each issue. For the mouse-averse, the new 'Operations Dialog' box provides access to all menu options via the keyboard.

To help speed up your ability to work on issues, we've also made common actions and workflow operations accessible from convenient dialog boxes.

Time-tracking has become much more flexible: you can now edit the Original Estimate, and set the Remaining Estimate to zero when resolving an issue. You can also log work via workflow 'transition' (or any other) screens.

The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users and administrators — and everyone else who likes to label their JIRA issues.

Note to developers: JIRA 4.2 includes the Atlassian Plugin Framework version 2.5, and an alpha release of the JIRA REST API. We are very keen to hear your feedback on the REST API — please try it out and add your comments to JRA-22139.

Upgrading to JIRA 4.2 is free for all customers with active JIRA software maintenance as of October 21, 2010.

Highlights of JIRA 4.2:

- Dialogs for Common Actions and Workflow Operations
- Keyboard Shortcuts and 'Operations Dialog'
- Issue Labelling
- Improvements to the 'View Issue' Screen
- Auto-complete for Versions and Components
- Attachment Sorting by Date or Name
- Viewable Files in Zipped Attachments
- 'Log Work' Improvements
- Improvements to the Issue Navigator
- 'Filter' Gadget creation via the Issue Navigator
- User Avatars and Hover Profile
- New JQL Functions
- Other Enhancements and Fixes
- Plus over 120 other fixes and improvements

Thank you for your feedback:

More than 40 new feature requests implemented
More than 850 votes fulfilled

Your votes and issues help us keep improving our products, and are much appreciated.

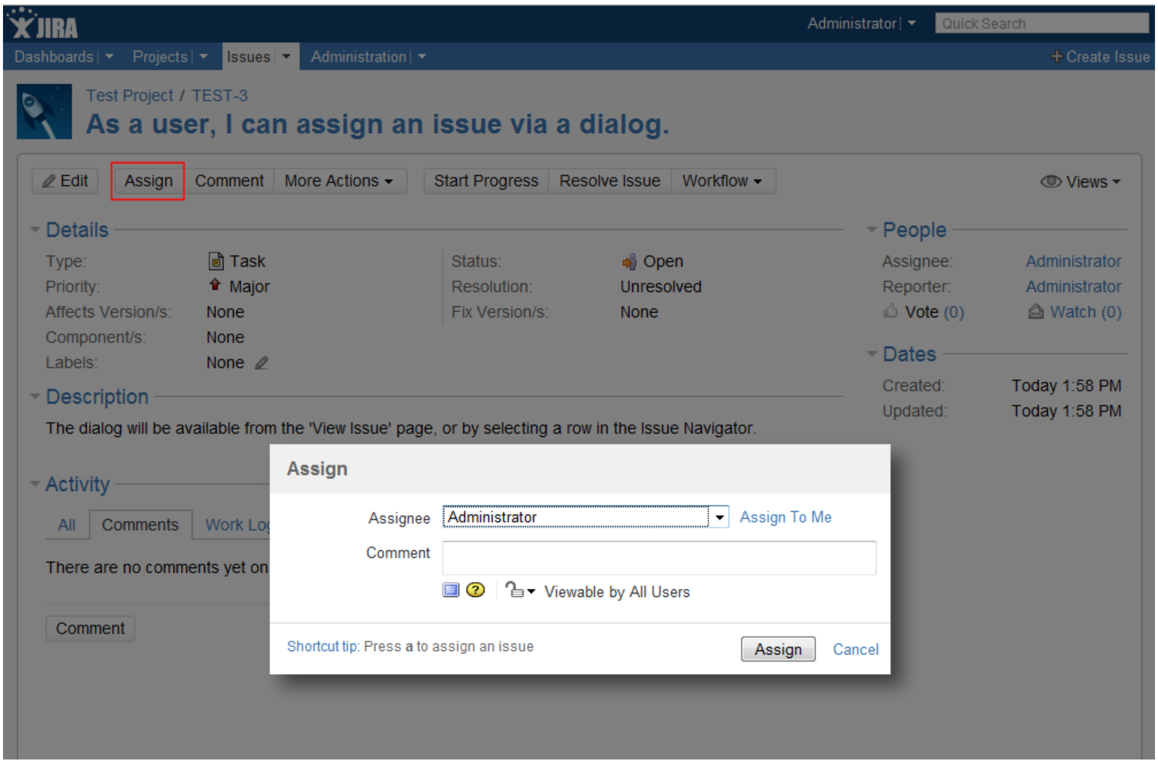
> **Upgrading to JIRA 4.2**
> JIRA 4.2 can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 4.2 Upgrade Guide.

Highlights of JIRA 4.2

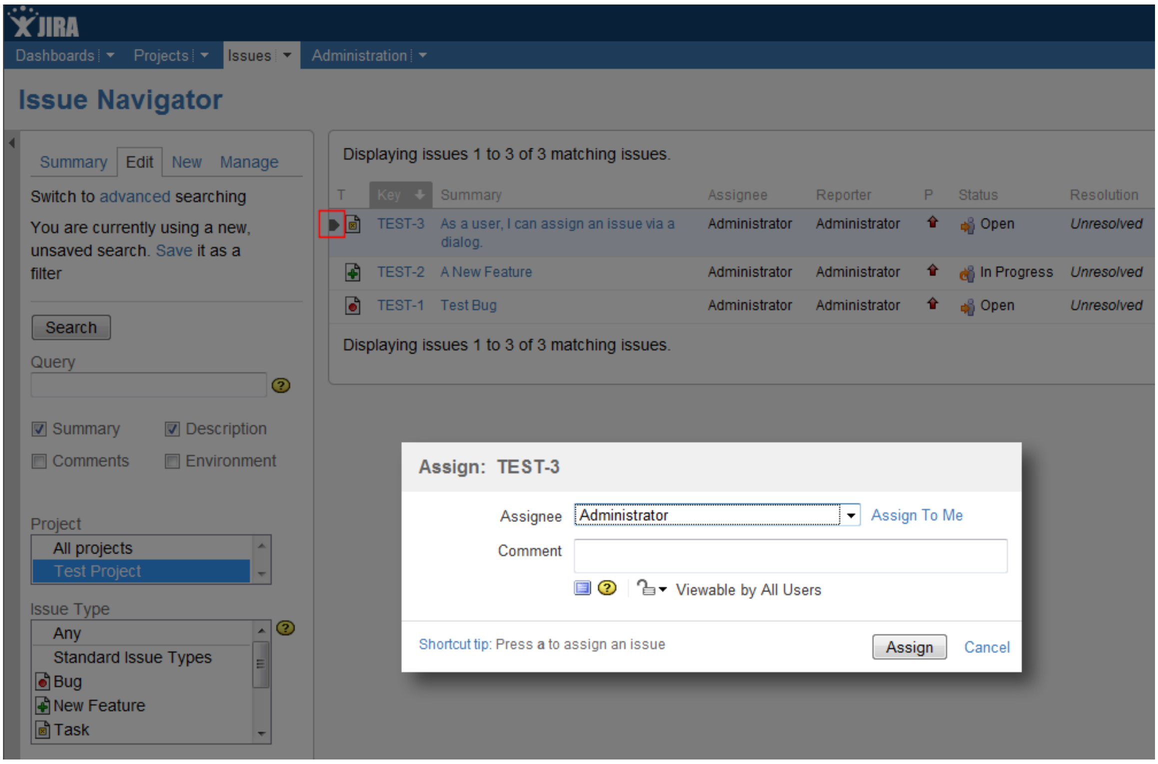
1

Dialogs for Common Actions and Workflow Operations

For faster edits to an issue, pop-up dialogs have replaced screen changes for common actions and workflow operations.



You can now perform an action on an issue (via a dialog) directly from the Issue Navigator — without opening the issue first. The issue marker shows which issue you have selected (via your keyboard) in the result list.



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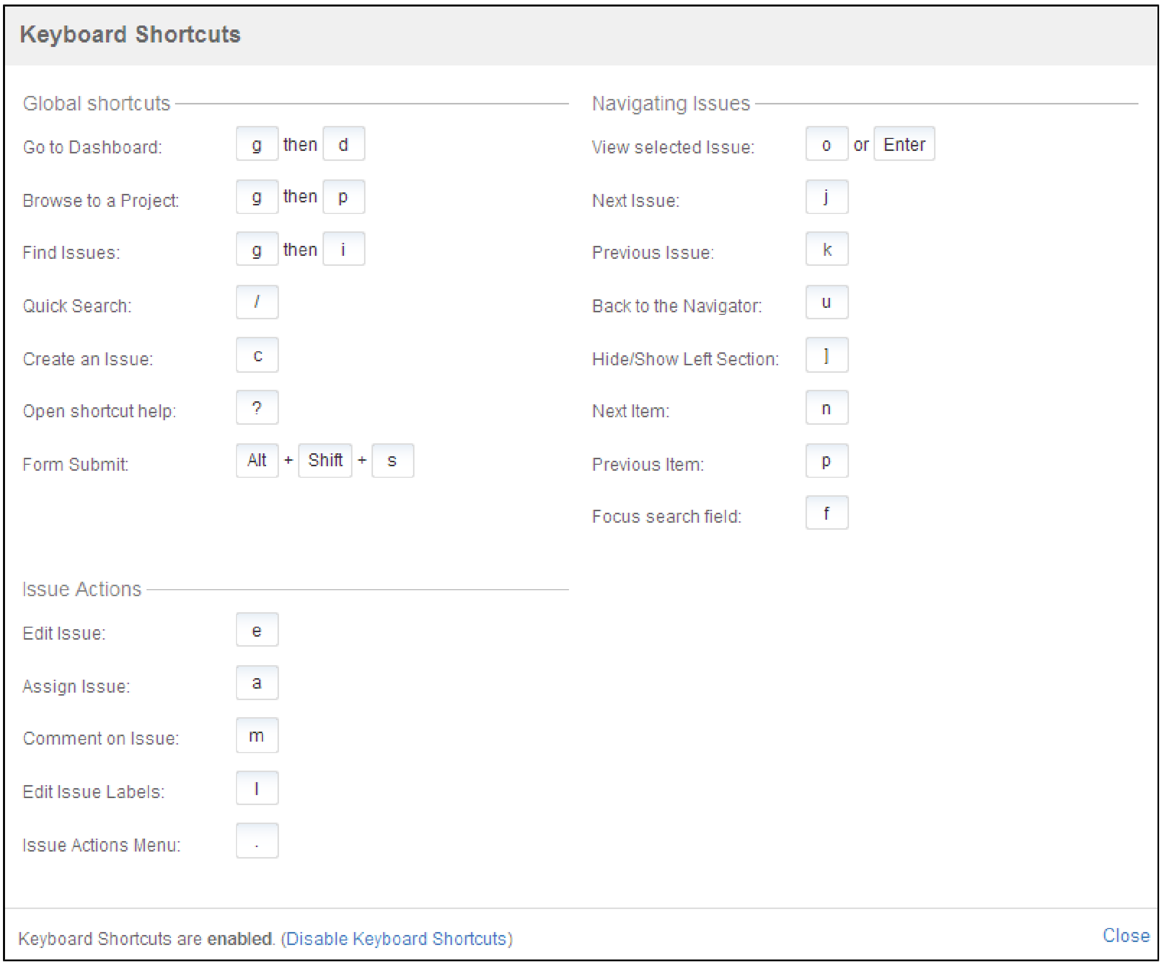
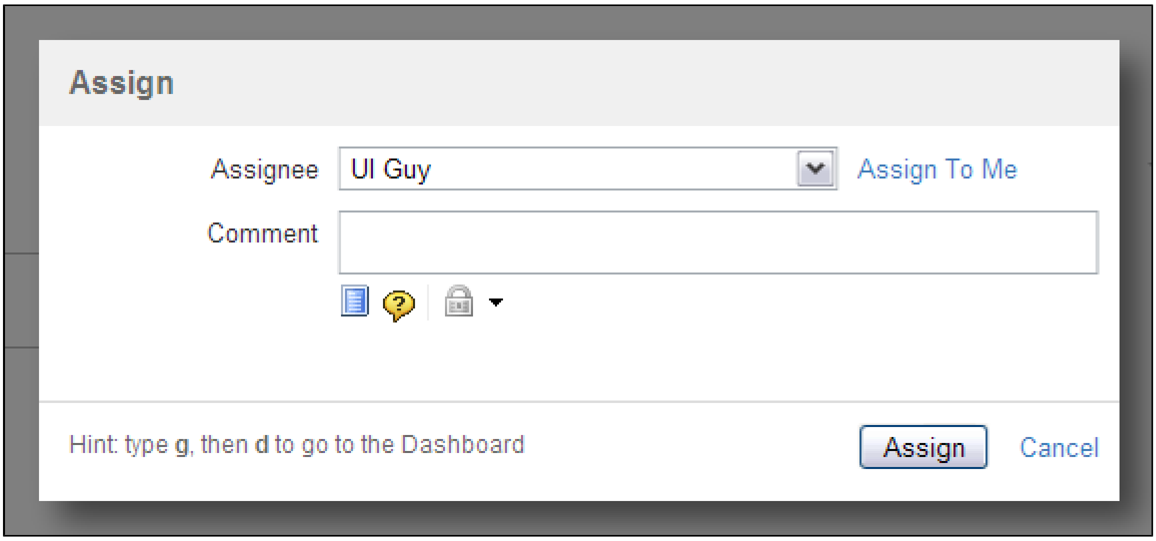
2

Keyboard Shortcuts and 'Operations Dialog'

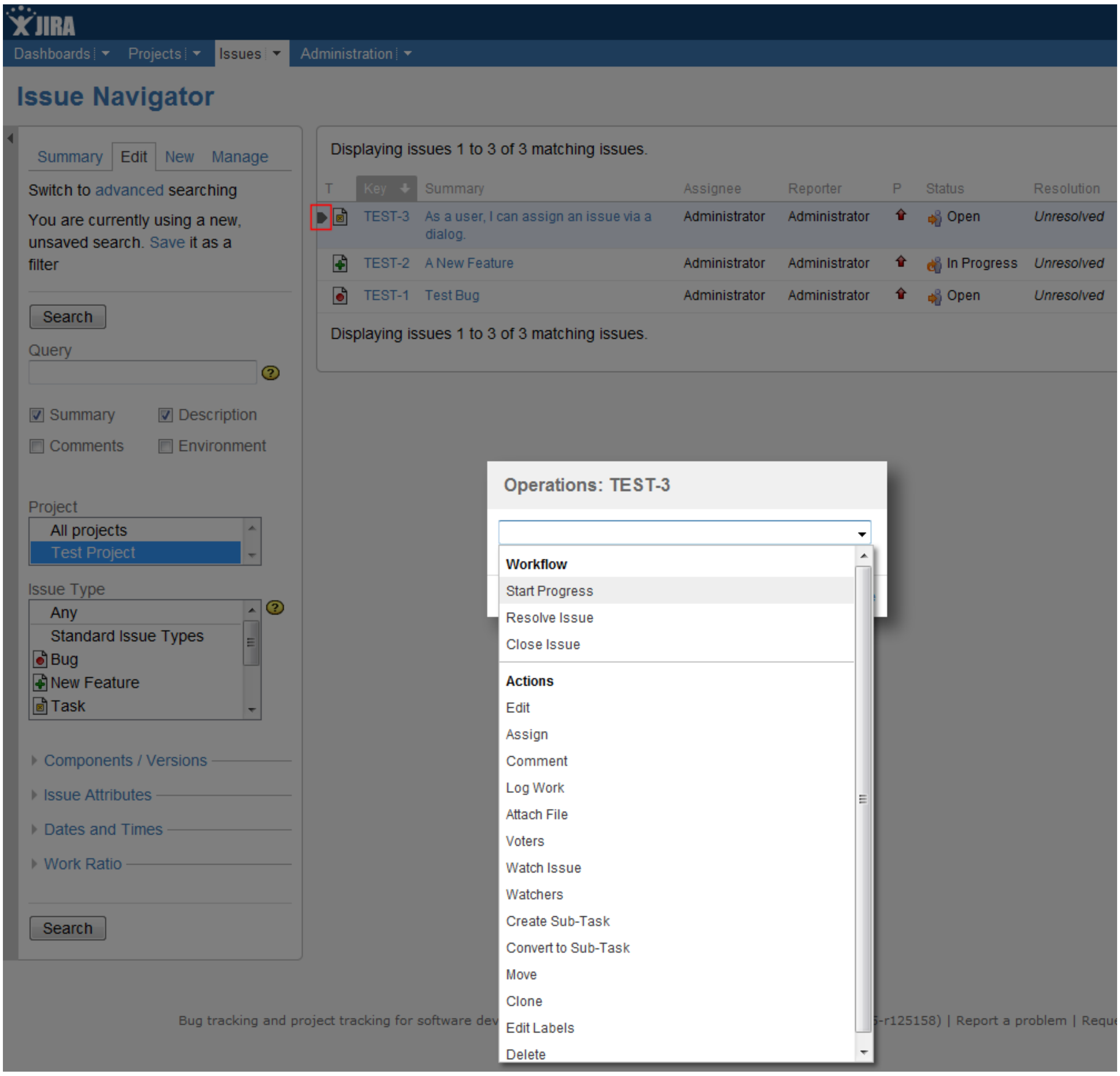
JIRA users can now do more without a mouse — perfect for power users:



Hints also appear at the bottom of a dialog, helping you to learn keyboard shortcuts on the fly:



The new 'Operations Dialog' lets you perform actions via the keyboard (instead of the mouse), using the full-stop ('dot') key to access the 'Actions' and 'Workflow' menus. The Operations Dialog works from the Issue Navigator and also when viewing an individual issue.

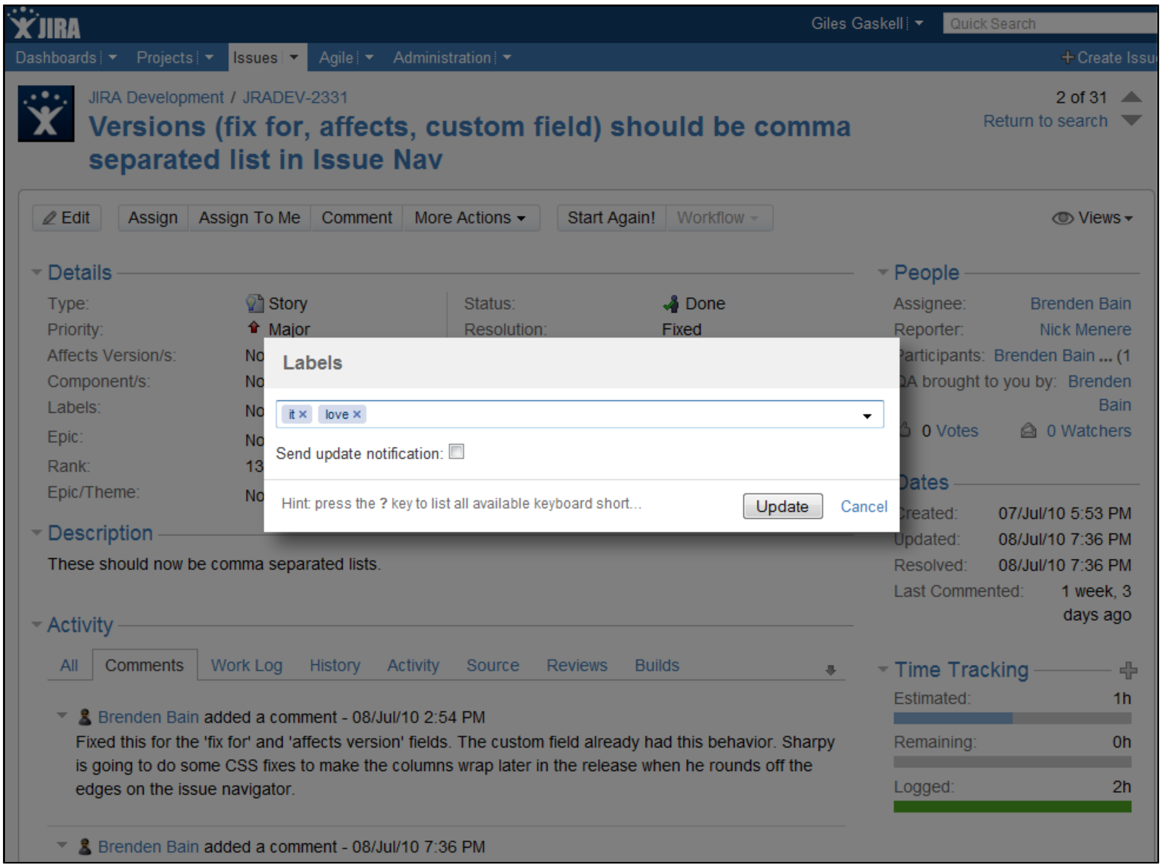


See Using Keyboard Shortcuts for more information.

^Top

Issue Labelling

The functionality from the Labels plugin is now included in JIRA out-of-the-box. The labels dialog has a great new UI, and email notifications are now optional when updating labels for an issue.



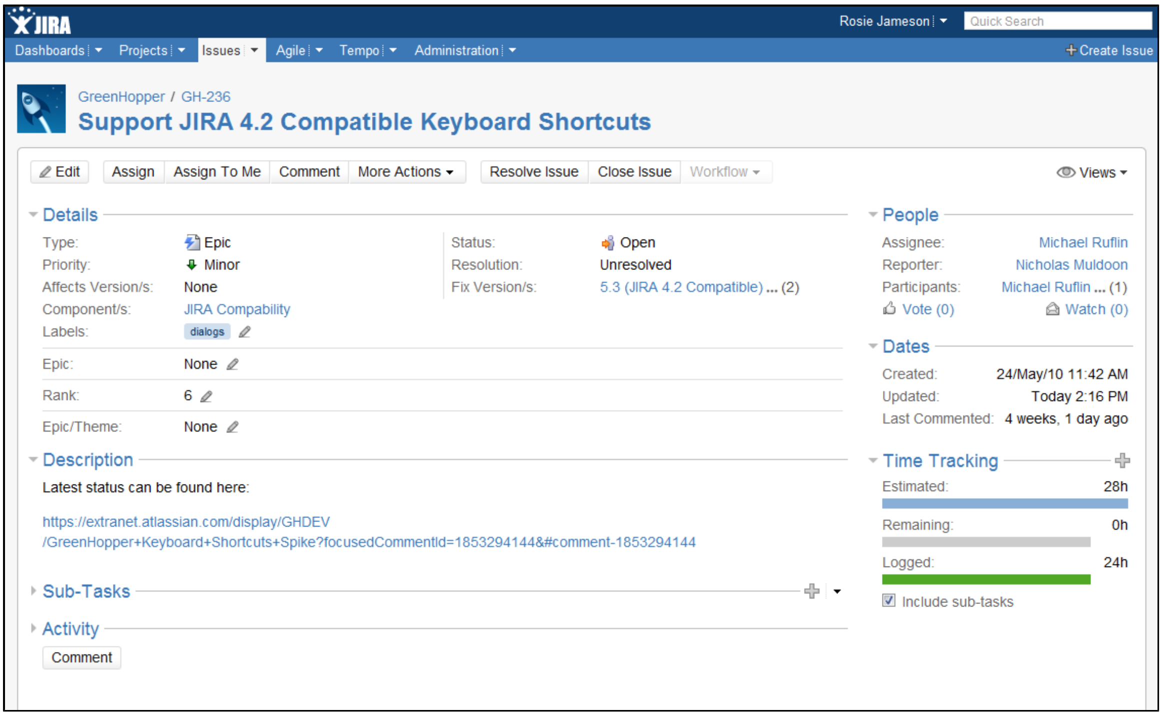
See Labelling an Issue for more information.

^Top

Improvements to the 'View Issue' Screen

We have improved the look and feel of the 'View Issue' screen even more. Some improvements include:

- Tighter spacing between lines to reduce space between elements
- Stronger section headings
- The 'Description' field separated into its own section
- Horizontal division lines between each custom field
- Votes and Watchers fields on the same line
- Labels represented as bubbles



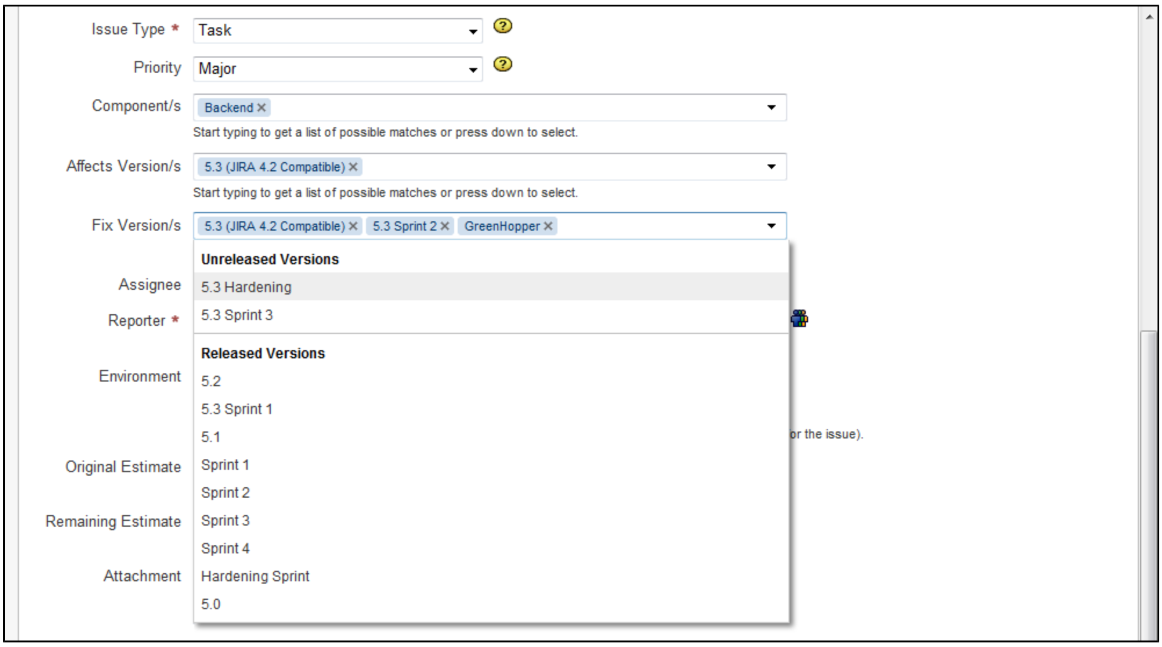
Individual blocks can now be collapsed to streamline your issue view. The view state (i.e. which blocks are expanded/collapsed) will also be remembered across issues. You can also add a comment at the bottom of the '**Comments**' section.

^Top

Auto-complete for Versions and Components

Editing the **Component**, **Affects Version(s)** and **Fix Version(s)** is now quicker and easier. Upon typing into one of these fields, a dropdown menu appears with a list of options matching the first few characters you typed.

For convenience, the version lists are divided into **Released** and **Unreleased** categories.

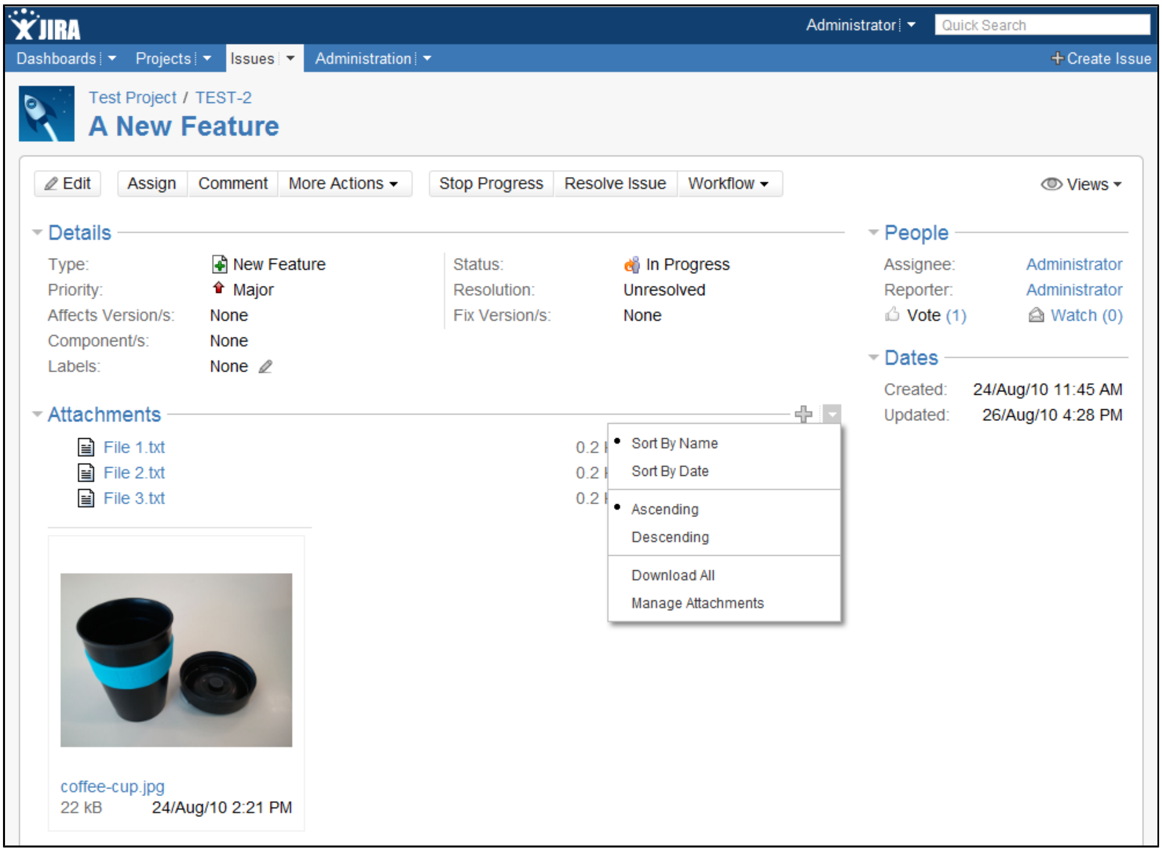


^Top

6

Attachment Sorting by Date or Name

Attachments can now be sorted by date or by name, in ascending or descending order.



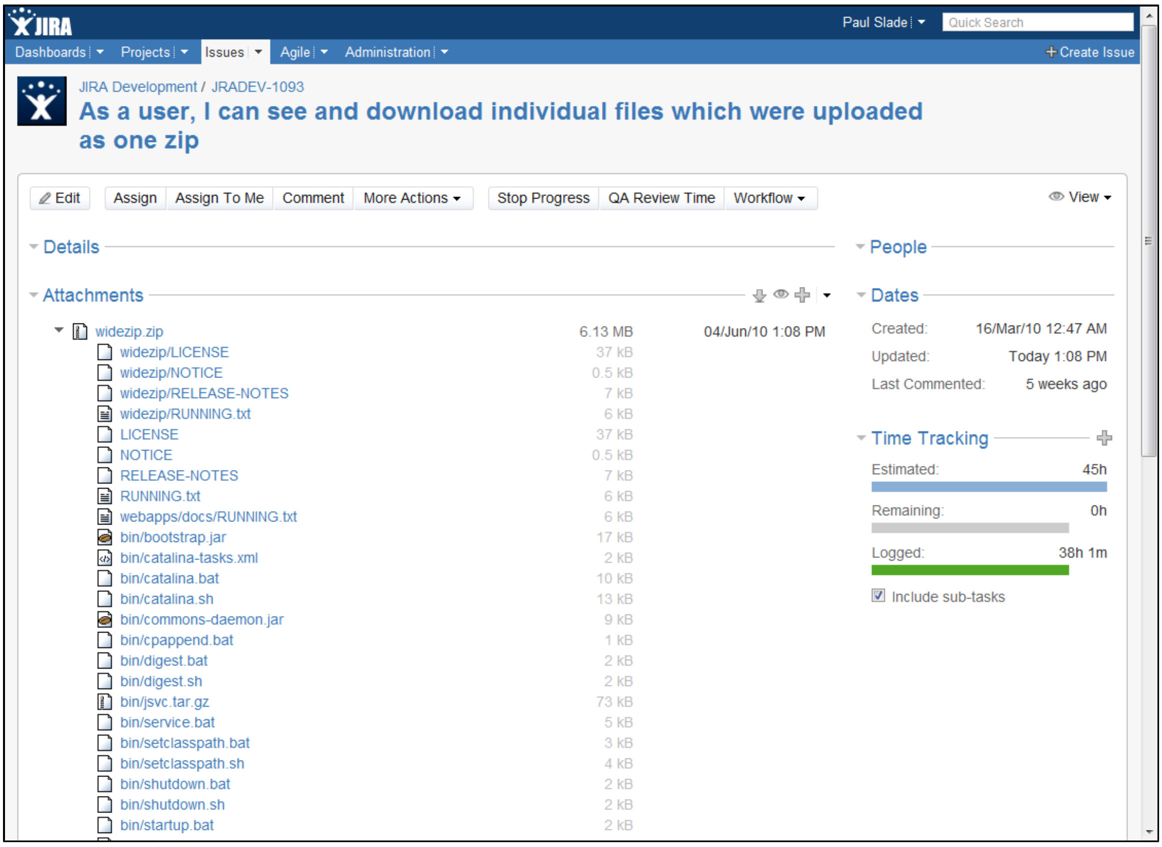
See Attaching a File for more information.

^Top

7

Viewable Files in Zipped Attachments

You can expand an attached zip file to see its contents. The first 30 files will be shown for larger zip files.



See Accessing ZIP-format File Contents for more information.

^Top

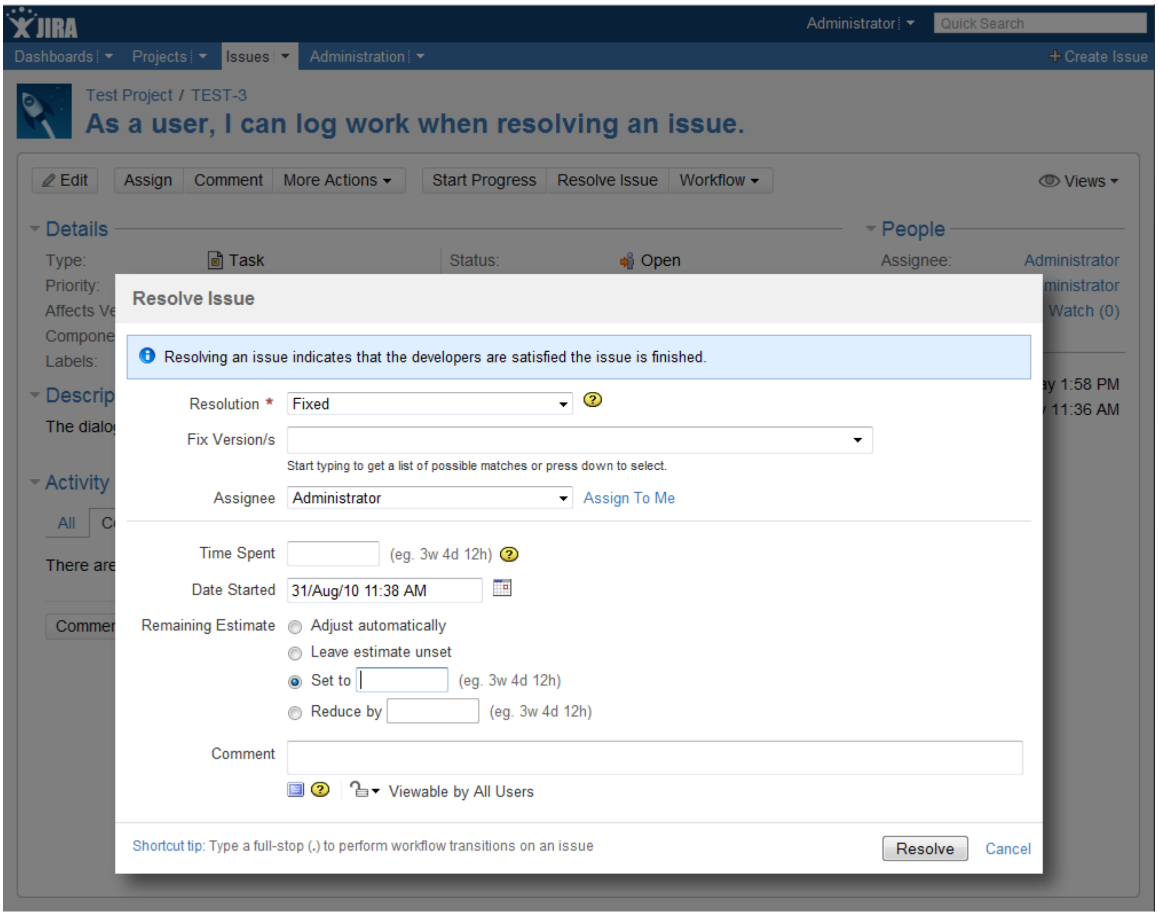
'Log Work' Improvements

You can now log work when you resolve an issue, saving you a step. You can also set the Remaining Estimate to 0 upon resolving an issue.

You now have the ability to edit the Original Estimate, even if work has been logged on an issue (not shown here).

We've also included the ability to add work log descriptions in wiki-markup (not shown here).

Lastly, you can add the 'Log Work' fields to any screen in JIRA (not shown here).



See Logging Work on an Issue for more information.

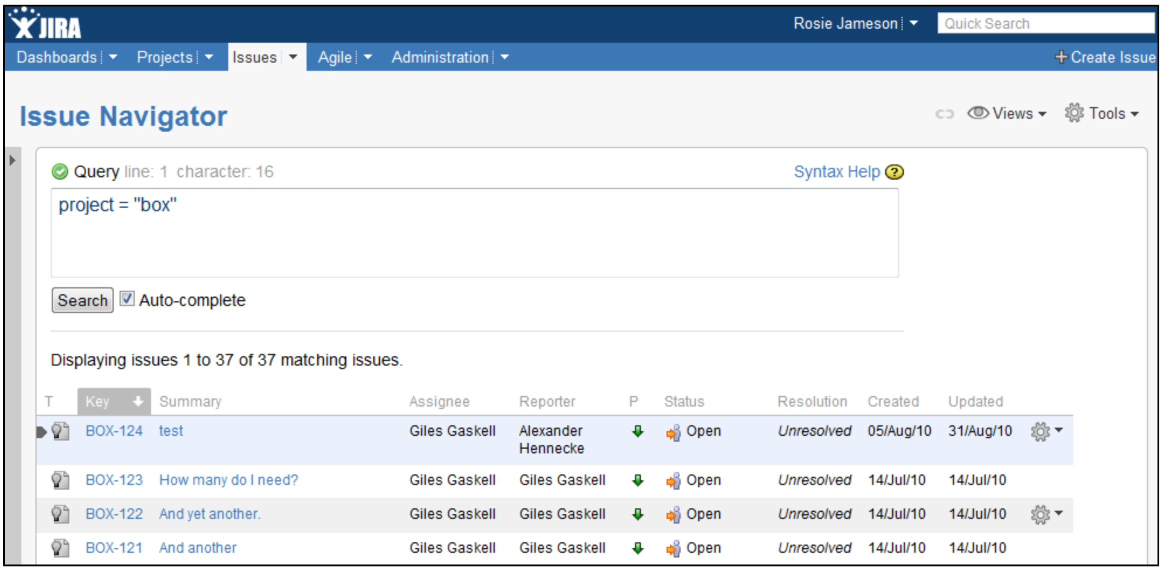
^Top

9

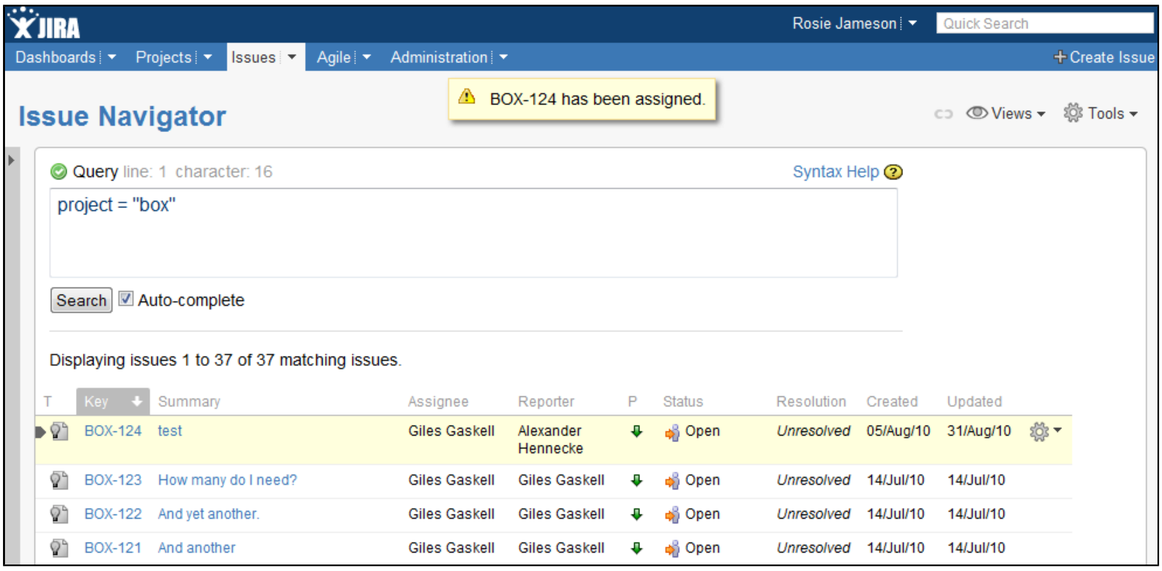
Improvements to the Issue Navigator

The Issue Navigator has been updated to match the look and feel of an issue.

We've also added: an issue marker and colour highlight for keyboard navigation (blue); colour highlight for mouse selection (grey); toggle to collapse the search form.



When a change is made via a dialog, JIRA will give you feedback on that change as confirmation.

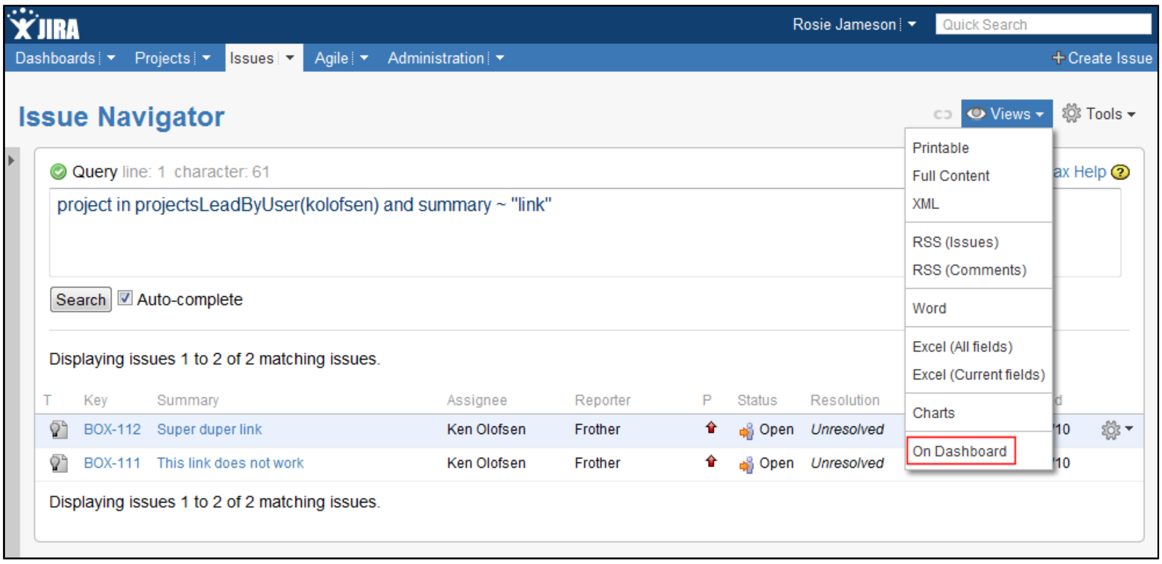


^Top

10

'Filter' Gadget creation via the Issue Navigator

When viewing search results, you can quickly add a 'Filter Results' gadget to your dashboard via the 'Views' menu.

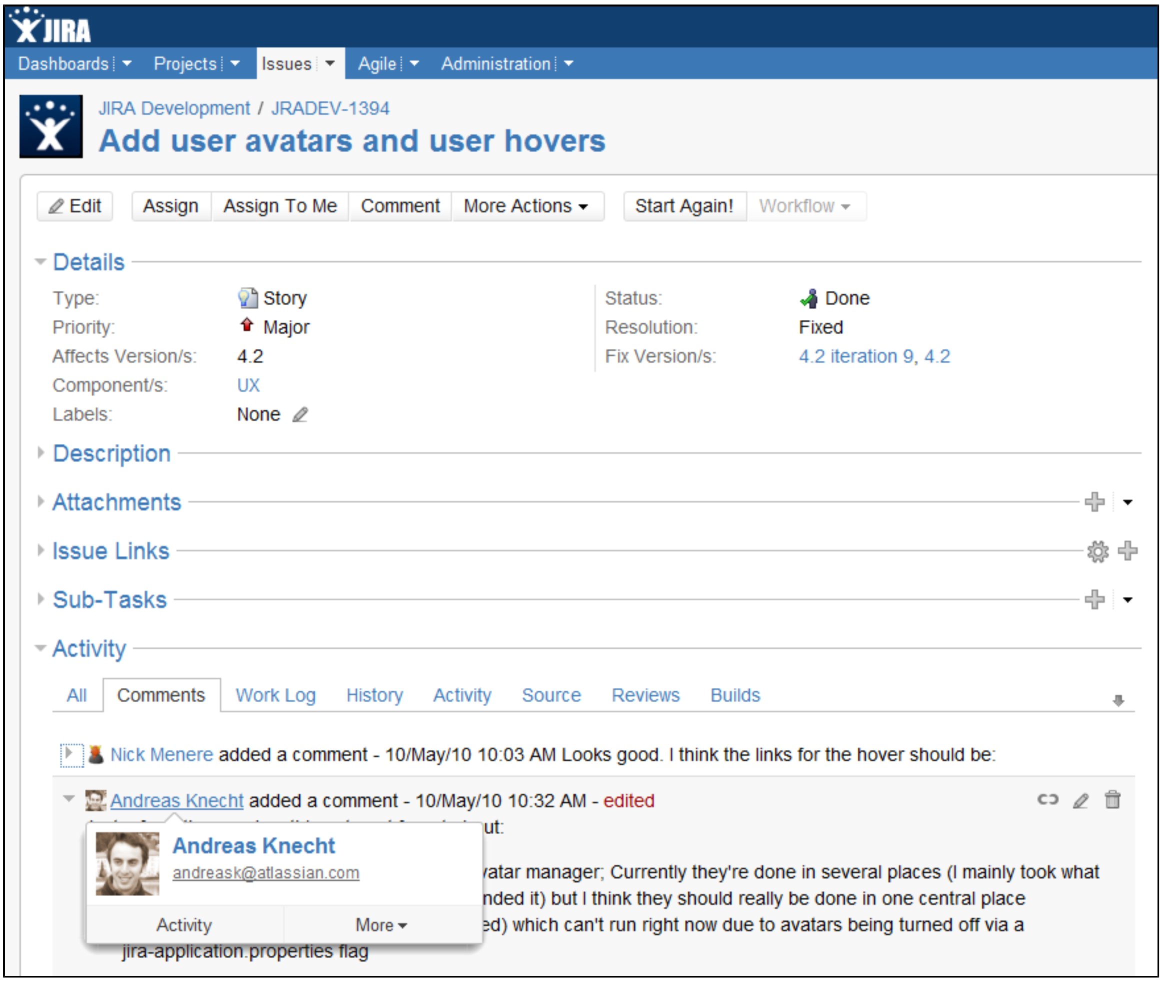


^Top

11

User Avatars and Hover Profile

JIRA users can now add an avatar to their profile. You can then mouse-hover over a user's name to show information about that user — this is available when viewing an issue, using the Issue Navigator, browsing a project, viewing activity, viewing a user profile and performing some administration tasks.



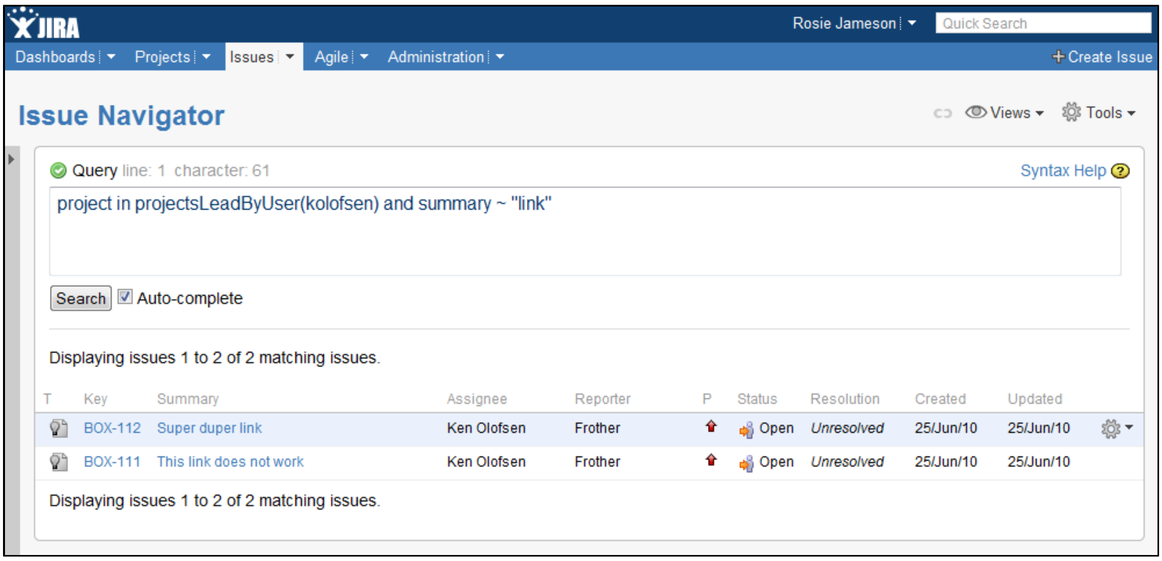
See Adding a User Avatar and Using Hover Profile for more information.

^Top

12

New JQL Functions

Additional JQL functions for projectsLeadBy and componentsLeadBy — useful for finding all issues where a particular user is the lead of a component, or a project.



See Advanced Searching for more information.

^Top

13

Other Enhancements and Fixes

- If you use Firefox or IE, you can now search JIRA issues from the convenience of your browser's search box. Just add your JIRA site as a search engine/provider, via the dropdown menu next to the browser's search box. This is because JIRA now supports the autodiscovery part of the OpenSearch standard.

^Top

Plus over 120 other fixes and improvements

The top 50 most popular issues resolved in JIRA 4.2 are listed below. Click here for the full list.

JIRA Issues (50 issues)

Key	Type	Summary	Priority	Status
JRA-868		Resolve & Time spent		Resolved
JRA-1744		"Log work done" as a MANDATORY field when resolving issues		Resolved
JRA-4888		Can't edit original estimate		Resolved
JRA-7624		Add time tracking fields to the RemoteIssue object		Resolved
JRA-1993		Resolving an issue should automatically put the estimated time remaining to 0		Resolved
JRA-13512		Setting remaining time to 0 in a post function of the workflow causes the original estimate to be set to 0 as well (only when no time was logged by the assignee)		Resolved
JRA-9170		Enable Wiki Renderering for the Work Log description field		Resolved
JRA-13733		I should be able to change the remaining estimate without logging work done		Resolved
JRA-12498		New functions for SOAP API		Resolved
JRA-11276		SOAP: Retrieving Parent- and Sub- Issues information		Resolved
JRA-15734		Issue view page displays mixed security warning dialog in Internet Explorer when viewed over HTTPS		Resolved
JRA-5761		Session timeout should be handled more gracefully.		Resolved
JRA-19796		REST API for JIRA		Resolved
JRA-14076		DoubleConverter / NumberCFType is not as I18N as it could / should be - decimal separator does not respect user's locale		Resolved
JRA-8557		Add a addWatcher(RemoteUser) and / or addWatcher(RemoteUser[]) RPC / SOAP method		Resolved
JRA-21189		View Issue screen custom tabs show fields from all custom tabs, on page load and when Activity tabs are clicked		Resolved
JRA-21439		Support Transparent Image for Project Avatar		Resolved
JRA-20351		AXIS internal SOAP type representation is unstable.		

				Resolved
JRA-21105		IE6 over HTTPS displays popup about secure & unsecure content on all view issue pages		Resolved
JRA-19557		Thumbnail of certain image attachments fail and cause ERROR in log		Resolved
JRA-20956		Issue View shows fields of second tab when first opened		Resolved
JRA-15862		Thumbnail in JPEG breaks transparency used in PNG/GIF		Resolved
JRA-20995		Privilege escalation vulnerability when administrator access is compromised		Resolved
JRA-20562		JQL breaks issue security levels based on custom fields		Resolved
JRA-17759		CAPTCHA image broken when running in OpenJDK		Resolved
JRA-15978		Add functionality to JIRA XML-RPC and soap for downloading attachments		Resolved
JRA-21605		New UI makes issue key very hard to select for copy and paste		Resolved
JRA-7287		Soap: GetSubTaskParent(IssueKey)		Resolved
JRA-21244		Enable keyboard navigation of users in Assignee drop down		Resolved
JRA-21166		Can't select issue summary in issue view screen		Resolved
JRA-15776		Get Standalone JIRA to detect the DBCP settings and RDBMS and add warnings if it is using MySQL without a validation query.		Resolved
JRA-11682		Put an 'Add comment' link at the bottom of the page.		Resolved
JRA-20994		XSS Vulnerabilities in JIRA		Resolved
JRA-21841		XsrfVulnerabilityDetectionSQLInterceptor causes NPE on GreenHopper		Resolved
JRA-17760		JIRA does not compile under OpenJDK		Resolved
JRA-21876		LDAP delegating CROWD installations are broken by JIRA brute password protection code		Resolved
JRA-19947		List of attachments is not kept when updating an issue fails due to validators		Resolved
JRA-21159		PermGen memory not set, if JAVA_HOME is set incorrectly or missing		Resolved
JRA-21308		Comment form buttons aren't visible by scrolling when box fills up the browser window.		Resolved
JRA-20810		Attachment sorting needed like issue sorting		Resolved
JRA-22064		Attachment Sort order		Resolved
JRA-15079		Sent information is lost when data is submitted after session has expired		Resolved
JRA-19691		Attach file should have replace or rename option and default comment		Resolved
JRA-8082		SOAP should be able to find out what groups a user is a member of		

				Resolved
JRA-21806		Feedback for combo boxes		Resolved
JRA-22172		using JSESSIONID from /auth REST resource doesn't work		Resolved
JRA-22287		Failure uploading attachments when uploading time exceeds 1 minute		Resolved
JRA-21243		Unable to run from start menu after installation due to Service name on JIRA 4.0 and JIRA 4.1.1 has different SERVICE_NAME description		Resolved
JRA-21586		Prevent duplicate form actions from happening		Resolved
JRA-21054		With Safari 4, Cmd+C on a bug page sometimes jumps up to "Create Bug" popup		Resolved

^Top

JIRA 4.2.1 Release Notes

6 December 2010

The Atlassian JIRA team announces the release of **JIRA 4.2.1**. This point release contains several updates and fixes, including the issue of remembering which sections of the 'View Issue' screen are collapsed. This point release is a **highly recommended upgrade** as it contains important fixes to security vulnerabilities — please refer to the JIRA Security Advisory 2010-12-06 for details.

JIRA 4.2.1 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4.2 yet?
Take a look at all the new features in the JIRA 4.2 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.2.1 Upgrade Guide.

Updates and Fixes in this Release

JIRA 4.2.1 includes the following updates and bug fixes:

JIRA Issues (21 issues)				
Type	Key	Summary	Priority	Status
	JRA-22554	Sending mails on a separate thread which can be timed out to avoid the mail queue from getting clogged		Resolved
	JRA-19998	Upgrade/Backup documentation doesn't mention copying avatars		Resolved
	JRA-22980	Jasper exception when trying to add a zip containing a file with an ' (apostrophe) character in its name		Resolved
	JRA-22947	Hitting enter in autocomplete field doesn't work after typing component name with a space in it		Resolved
	JRA-22927	Searching and selection on decimal value is broken for fields like affected version/fix version in JQL search		Resolved
	JRA-22917	Several dialogs do not have correct focus when errors occur under IE		Resolved
	JRA-22750	"Viewable by" dropdown position in dialog is not retaining its position and also srolling up and down moves the view issue page in background		Resolved
	JRA-22674	Duplicate ids in Issue comments		Resolved
	JRA-22966	labels dialog has second redundant text field above the labels field		

				Resolved
	JRA-22829	Increase throbber timeout for frother control		Resolved
	JRA-22609	JIRA 4.2 hangs on Workflow transitions when Ajax is disabled in IE7/8		Resolved
	JRA-22572	The loading of the field layout cache is not properly synchronized, leading to major performance issues for large customers with many custom fields.		Resolved
	JRA-22505	Sequenced keyboard shortcuts don't 'mute' other shortcuts assigned to the same key		Resolved
	JRA-16851	Mail queue hangs after trackback problems		Resolved
	JRA-23217	JIRA 4.1.2 "Created vs Resolved Chart" gadget failed to render when adding it as external gadget to another instance		Resolved
	JRA-23216	Adding "Heat Map" gadget to another instance not working for JIRA 4.1.2		Resolved
	JRA-23047	Using the word "Footer" in "Components" makes UI break		Resolved
	JRA-22859	Screenshot attach always takes you to manage attachments.		Resolved
	JRA-22845	FC: Slow connections -> throbbers?		Resolved
	JRA-22320	Favicon's not included in frontpage.jsp		Resolved
	JRA-22628	Missing full stop on "Login Required" page		Resolved

JIRA 4.2.1 Upgrade Guide

Upgrading from JIRA 4.2 to 4.2.1

Please follow the JIRA general upgrade instructions.

When you download JIRA, please note that the filename now includes the build number, e.g. "b588" in the filename "atlassian-jira-enterprise-4.2.1-b588-windows-installer.exe". This has no effect on the JIRA directory structure or on the upgrade process.

Please note that the inclusion of the build number has also been applied to the name of JIRA artifacts deployed to Maven and to the versions specified in the JIRA POMs.

Upgrading from JIRA 4.1.x and earlier

In addition to the above, please read the JIRA 4.2 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.2.2 Release Notes

4 January 2011

The Atlassian JIRA team announces the release of **JIRA 4.2.2**. This point release contains several updates and fixes, plus a Beta release of the JIRA Importers Plugin, providing improved support for Bugzilla. Please see the documentation: Importing Data from Bugzilla.

This point release is a highly recommended upgrade as it contains important fixes to security vulnerabilities — please refer to the JIRA Security Advisory 2011-02-21 for details.

JIRA 4.2.2 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4.2 yet?
Take a look at all the new features in the JIRA 4.2 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.2.2 Upgrade Guide.

Updates and Fixes in this Release

JIRA 4.2.2 includes the following updates and bug fixes:

JIRA Issues (24 issues)				
Type	Key	Summary	Priority	Status
	JRA-22448	Comment Query Performance: Please Change CommentClauseQueryFactory.generateIssueIdFromCommentQuery from for loop to HitCollector		Resolved
	JRA-23196	Renaming Priority, Resolution, Status, Issue Type does not get reflected until a system restart		Resolved
	JRA-24146	After workflow scheme migration, issue moved to a newly added status are not readable		Resolved
	JRA-23265	AJP port is a bad default in JIRA 4.2		Resolved
	JRA-22618	Excel Export adds the issue key to the Project column & an extra blank row between records		Resolved
	JRA-23188	Basic auth authentication does not allow files to be attached in 4.2		Resolved
	JRA-23124	Bug in seraph breaks custom authenticators		Resolved
	JRA-23024	JIRA data anonymiser doesn't anonymise non-English characters		Resolved
	JRA-22673	Non-secure content warning in IE8 on the Dashboards screen caused by the wiki renderer		Resolved
	JRA-22623	Watched Issues gadget gives error when profiling is enabled.		Resolved
	JRA-22207	Add warning to Shared Filter explaining consequence of 'everyone'		Resolved
	JRA-21670	Upgrading to Jira 4.1.2 breaks PrepareAction functionality in plugins		Resolved
	JRA-21582	SimpleSearch turns Complex when searching on Fix Version options		Resolved
	JRA-19918	Cannot select some filters from filters/project picker in gadgets		Resolved
	JRA-23405	Issue keys are not hyperlinked when exporting to Excel		Resolved
	JRA-23268	Wrong link after attaching screenshot		Resolved
	JRA-23167	Date picker format incorrect when using Dutch(Belgium) language		Resolved
	JRA-23154	Forget Password link appear after enable"External password management"		Resolved
	JRA-23140	JiRA Calander - years listed alternative		Resolved
	JRA-23132	Required field asterisks and error messages not aligned correctly for some fields		Resolved
	JRA-23085	Increase the web session timeout from 60 minutes to 300 minutes		Resolved
	JRA-22885	The 'Date Started' field is compulsory on the Log Work field but there is no compulsory '*'		Resolved
	JRA-22823	Permalink icon on issue nav has a busted "outline focus" thing		Resolved

	JRA-23126	Typo in DEBUG log output		Resolved

JIRA 4.2.2 Upgrade Guide

Upgrading from JIRA 4.2 or 4.2.1 to 4.2.2

Please follow the JIRA general upgrade instructions, plus note the following:

Changes to filenames

When you download JIRA, please note that the filename now includes the build number, e.g. "b588" in the filename "atlassian-jira-enterprise-4.2.1-b588-windows-installer.exe". This has no effect on the JIRA directory structure or on the upgrade process.

Please note that the inclusion of the build number has also been applied to the name of JIRA artifacts deployed to Maven and to the versions specified in the JIRA POMs.

Changes to the "JIRA Users" Global Permission

Please note that it is no longer possible for groups that have the "JIRA System Administrators" global permission to be also granted the "JIRA Users" global permission (see Managing Global Permissions). This is because newly-created users are automatically added to groups that have the "JIRA Users" permission, and it is not good security practice to automatically grant the "JIRA System Administrators" global permission to new users.

Upgrading from JIRA 4.1.x and earlier

In addition to the above, please read the JIRA 4.2 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.2.3 Release Notes

31 January 2011

The Atlassian JIRA team announces the release of **JIRA 4.2.3**. This point release contains several updates and fixes, plus a new release of the JIRA Importers Plugin, providing improved support for Mantis and CSV imports. Please see the documentation: Importing Data From Mantis and Importing Data From CSV.

JIRA 4.2.3 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4.2 yet?
Take a look at all the new features in the JIRA 4.2 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.2.3 Upgrade Guide.

Updates and Fixes in this Release

JIRA 4.2.3 includes the following updates and bug fixes:

JIRA Issues (28 issues)

Type	Key	Summary	Priority	Status
	JRA-23327	Labels upgrade task assumes screen has a tab; may not be true		Resolved
	JRA-23390	Order of E-mail notifications (sent from queue)		Resolved
	JRA-23357	Javascript error in IE7 when Dashboard have Projects gadgets more than 420+ projects		Resolved
	JRA-23052	Sidebar clips tab names in Internet Explorer 6 and up on using other languages		Resolved
	JRA-21648	Issue filters do not follow issue security scheme correctly in some cases		Resolved
	JRA-23489	Calendar javascript widget should warn the user if there is no localised resources for the user's current locale		Resolved

	JRA-23257	Content-Length header on DELETE is incorrect		Resolved
	JRA-23183	Create Issue Components dropdown with many components is outside of viewable area and page scrolling by browser's (IE) vertical scrollbar causes dropdown to disappear.		Resolved
	JRA-23086	DefaultComponentClassManager does not find the plugin that can autowire a given class name correctly		Resolved
	JRA-23058	User is unable to scroll field values in "column to display" while editing gadget configuration in FF 3.6		Resolved
	JRA-22720	Attachments JSP error on JAC		Resolved
	JRA-22109	Issue Navigator thinks my Simple search is "too complex" for the simple page when I include a version		Resolved
	JRA-21238	Activity Stream broke, faultString: java.io.IOException: java.lang.IllegalArgumentException: The char '0x1' after		Resolved
	JRA-23387	Camel cased filters sometimes don't show when using filter/project autocomplete in Gadgets		Resolved
	JRA-23371	Javascript error shows 'Calendar' is undefined		Resolved
	JRA-23369	Comment security dropdown text incorrectly shortened		Resolved
	JRA-23321	Scrolling in the transition window seems to scroll in the background window in some occasions		Resolved
	JRA-23289	JIRA HTML email template refers to Enterprise Edition and the JIRA link is outdated		Resolved
	JRA-23229	NPE on upload of corupted avatar image		Resolved
	JRA-23152	The Comment security level dropdown does not align correctly under firefox when it is opened over an image.		Resolved
	JRA-23136	The browse project page's javascript does not have error handler for ajax calls which leaves the page blank on error.		Resolved
	JRA-23135	The browse project tabs can fail when their content is large enough.		Resolved
	JRA-23120	Label names not resolved on Single Level Group By Report		Closed
	JRA-23108	Attachment description is displayed twice		Closed
	JRA-22707	ID clash between ops bar Link Issue button and the Link Issue form in the dialog		Resolved
	JRA-21143	Null project descriptions result in an NPE when loading the project gadget		Resolved
	JRA-19236	User Picker auto-complete suggestions can be incorrect		Resolved
	JRA-16102	Accesskey + S for submitting sub tasks do not work		Resolved

JIRA 4.2.3 Upgrade Guide

Upgrading from JIRA 4.2.x to 4.2.3

Please follow the JIRA general upgrade instructions, plus note the following:

Changes to filenames

When you download JIRA, please note that the filename now includes the build number, e.g. "b588" in the filename "atlassian-jira-enterprise-4.2.1-b588-windows-installer.exe". This has no effect on the JIRA directory structure or on the upgrade process.

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Upgrading from JIRA 4.1.x and earlier

In addition to the above, please read the JIRA 4.2 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.2.4 Release Notes

8 February 2011

The Atlassian JIRA team announces the release of **JIRA 4.2.4**. This point release fixes an issue with the 'Filter Results' gadget. It also contains version 1.7.1 of the JIRA Importers Plugin.

JIRA 4.2.4 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4.2 yet?
Take a look at all the new features in the JIRA 4.2 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.2.4 Upgrade Guide.

JIRA 4.2.4 Upgrade Guide

Upgrading from JIRA 4.2.x to 4.2.4

Please follow the JIRA general upgrade instructions, plus note the following:

Changes to filenames

When you download JIRA, please note that the filename now includes the build number, e.g. "b588" in the filename "atlassian-jira-enterprise-4.2.1-b588-windows-installer.exe". This has no effect on the JIRA directory structure or on the upgrade process.

Please note that the inclusion of the build number has also been applied to the name of JIRA artifacts deployed to Maven and to the versions specified in the JIRA POMs.

Changes to the "JIRA Users" Global Permission

Please note that it is no longer possible for groups that have the "JIRA System Administrators" global permission to be also granted the "JIRA Users" global permission (see Managing Global Permissions). This is because newly-created users are automatically added to groups that have the "JIRA Users" permission, and it is not good security practice to automatically grant the "JIRA System Administrators" global permission to new users.

Upgrading from JIRA 4.1.x and earlier

In addition to the above, please read the JIRA 4.2 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.2 Upgrade Guide

On this page:

- Upgrading from JIRA 4.1 to 4.2
  - General Upgrade Instructions
  - Changes in `jira-application.properties`
  - Changes in `seraph-config.xml` and Crowd Integration
  - Non-bundled Plugins
  - Updated Toolkit Plugin for JIRA 4.2
  - Labels Plugin is Now in Core JIRA
  - Time Tracking Changes
  - Changes to Sub-Tasks
  - Changes to Attachment Creation
  - System Path Changes for Attachments, Indexes, Automated Backups and Services
  - New Security Option Available in `seraph-config.xml`
  - 'Contact Administrators' Link has been Removed

    - GreenHopper Versions 5.2 and Older are Not Compatible
    - Crowd Versions 2.0.6 and Older are Not Supported
        - Users of Fisheye/Crucible
    - Various Platforms are No Longer Supported
    - Internet Explorer 7 and 8 users must have "native XMLHTTP support" enabled
    - Other Known Issues
- Upgrading from JIRA 4.0 and Earlier

Upgrading from JIRA 4.1 to 4.2

General Upgrade Instructions

Please follow the instructions in the general JIRA upgrade guide (non-version specific), as well as the JIRA 4.2-specific instructions in the sections below. The general upgrade guide contains important tasks that are essential for getting your upgraded JIRA instance to work correctly (e.g. merging `jira-application.properties` customisations from the old instance to the upgraded instance).

Changes in `jira-application.properties`

If you are merging your old and new configuration files, as described in the Upgrade Guide, the following tables list the changes which have been made to the `jira-application.properties` file in JIRA 4.2.

The purpose of each *new* property is documented in the `jira-application.properties` file itself.

New properties in `jira-application.properties`
`jira.date.time.picker.use.iso8061 = false`
`jira.timetracking.estimates.legacy.behaviour=true`
`jira.timetracking.copy.comment.to.work.desc.on.transition=true`
`user.keyboard.shortcuts.disabled=false`
`jira.attachment.number.of.zip.entries=30`
`jira.attachment.do.not.expand.as.zip.extensions.list=docx, docm, dotx, ...`
`jira.ajax.autocomplete.labelsuggestion.limit = 20`
`jira.user.avatar.enabled=true`
`jira.browser.unsupported.warnings.disabled=false`

Properties removed from `jira-application.properties`
`jira.attachment.number` (See Changes to Attachments below for more information.)
`jira.paths.set.allowed` (See System Path Changes below for more information.)
`jira.paths.safe.backup.path` (See System Path Changes below for more information.)

Properties changed in `jira-application.properties`
`jira.avatar.megapixels=5` was changed to `jira.avatar.megapixels=10`

Changes in `seraph-config.xml` and Crowd Integration

When merging your old and new configuration files, as described in the Upgrade Guide, please take extra care with the `seraph-config.xml` file, since this file contains several new entries in JIRA 4.2.

If you simply copy your old `seraph-config.xml` to your new 4.2 installation, then:

- Your users will find that the Remember my login... functionality will not work.
- If you had Crowd integrated with JIRA prior to upgrading, your Crowd integration with JIRA will no longer work after the upgrade.

The following table lists the changes to the `seraph-config.xml` file in JIRA 4.2:

Elements in `seraph-config.xml` prior to JIRA 4.2	Change in JIRA 4.2
`<param-name>login.cookie.key</param-name>` `<param-value>seraph.os.cookie</param-value>`	`<param-value>seraph.os.cookie</param-` `<param-value>seraph.rememberme.cookie<`

<param-name>autologin.cookie.age</param-name> <param-value>31536000</param-value>	<param-value>31536000</param-value> has <param-value>1209600</param-value>
<init-param> <param-name>cookie.encoding</param-name> .... <init-param>	Removed as this <init-param> entry is no longe

<authenticator class=
    "com.atlassian.crowd.integration.seraph.JIRAAuthenticator"/>
	Changed to
	
	<authenticator class=
	    "com.atlassian.crowd.integration.s

<param-name>config.file</param-name> <param-value>seraph-paths.xml</param-value>	<param-value>/seraph-paths.xml</param- <param-value>seraph-paths.xml</param-v

Non-bundled Plugins

If you use or develop a plugin that is not bundled with JIRA, then please read the Updating JIRA Plugins for JIRA 4.2 guide. This guide describes changes in JIRA 4.2 which may affect the compatibility of your plugin with JIRA 4.2.

Updated Toolkit Plugin for JIRA 4.2

If you use the Toolkit Plugin with JIRA, you will need to update it to at least version 0.15 for compatibility with JIRA 4.2.

Labels Plugin is Now in Core JIRA

The Labels plugin functionality is now part of JIRA core, so the Labels plugin should no longer be installed. If an earlier version of the Labels plugin is installed when upgrading to JIRA 4.2, JIRA will not start up. An appropriate error message wil be shown in the logs and UI.

All existing labels will continue to exist. As part of the 4.2 upgrade process, any data in a pre-existing "Labels" custom field (e.g. if you were using the Labels plugin) will be migrated to the new "Labels" system field.

> Only labels custom-fields called "Labels" will be converted to the system field. All other label custom fields will remain as label custom-fields. If a particular label custom-field should be moved into the system field, it should be named "Labels" before the upgrade!

Time Tracking Changes

Prior to JIRA 4.2, the **Original Estimate** and **Remaining Estimate** fields could not be edited independently and their values would be synchronised after logging work.

From JIRA 4.2, time tracking is more flexible. The values in these fields are not tied to each other and they can be edited independently. Additionally, it is now possible to change the Original Estimate value *after* work has been logged.

Clean installations of JIRA 4.2 will automatically have access to this more flexible time tracking feature. However, if you are a JIRA customer *upgrading* to version 4.2, JIRA's time tracking feature will be set to **Legacy Mode** so that users can continue to operate JIRA's original work logging features as usual.

If you have upgraded to JIRA 4.2 and wish to use the newer and more flexible time tracking features, you will need to disable **Legacy Mode** in JIRA's Time Tracking settings. (You will need to deactivate Time Tracking before you can disable **Legacy Mode**.)

> If you have upgraded to JIRA 4.2 and have disabled **Legacy Mode**, the **Log Work** fields *will not automatically be available* on the 'Resolve' and 'Close' transitions of JIRA's default workflow, nor will they be available on any other (custom) workflow transition.
>
> To add these fields to a workflow transition, add the **Log Work** field to the appropriate screen used by that workflow transition. Refer to Adding Time Tracking capabilities to a screen on the Defining a Screen page for more information.
>
> (The **Log Work** field is actually a group of time-tracking fields.)
>
> **Tip:** If you use JIRA's default workflow, add the **Log Work** field to the **Resolve Issue Screen**.

Changes to Sub-Tasks

On new installations of JIRA 4.2 or later, Sub-Tasks are enabled by default. However, upon upgrading to JIRA 4.2, your Sub-Task configuration will remain unchanged. Therefore, if Sub-Tasks are disabled on your JIRA site before upgrading to JIRA 4.2, Sub-Tasks will still be disabled after the upgrade is completed.

Changes to Attachment Creation

Attachments are uploaded 'inline', that is when a user selects a file it is immediately uploaded to the server. A temporary attachment will be created on the server for this file. Once the form the file was uploaded in is submitted, the temporary attachment will be converted to a real attachment for the issue in question. Due to this improvement, limiting the number of file upload boxes via the `jira.attachment.number` property is no longer necessary and can safely be removed from your jira-application.properties file.

System Path Changes for Attachments, Indexes, Automated Backups and Services

For security reasons, from JIRA 4.2, you are no longer able to customise directories for storing the following types of JIRA content:

- attachments,
- search indexes,
- automated XML backups and
- other JIRA services

JIRA now stores these types of content in '**Default**' directories within the JIRA home directory.

- For new installations of JIRA 4.2, these types of content will only be stored within their default directories.
- If you upgrade to JIRA 4.2 from an earlier JIRA version that used custom directories to store these types of content, JIRA 4.2 will respect these custom directories. However, once you change to using the default directory for storing any of these types of content, you can no longer specify nor use a custom directory for that content type.

Note that you will need to copy your attachments to your JIRA Home Directory if you set your Attachments path to "default".

If you upgrade to JIRA 4.2 on a different machine (or different operating system) and previously:

- used custom directories to store attachments or search indexes, JIRA will warn you that it cannot create these custom directories if they do not exist on the new system.
  Hence, you can either:
  - Choose to use JIRA's default directories to store these types of content, or
  - Shutdown JIRA, recreate those custom directories (with permission for JIRA to write to them) and start the JIRA upgrade process again with the same XML backup.
    To identify these custom directories, JIRA will indicate them during the XML backup restore process.
- used custom storage directories for any JIRA service (such as an automated XML backup), JIRA will respect these custom directories and create them for you on the new system.

For more information about these changes, please refer to JRA-21232.

New Security Option Available in `seraph-config.xml`

Seraph can now be configured to invalidate your session upon login, which is a more secure configuration than before.

What this means is that the session you establish with JIRA **before** logging in is effectively destroyed and recreated with a new identity. This means that the session cookie value will be different after logging in. The implications of this are that you can be sure that even if you as a user have been unknowingly tricked into following a poison link to JIRA that forces you to use a session id that an attacker also already has access to, the act of logging in will free you from that session and you will not enable the attacker to gain access to your account.

In addition to the new identity, the new session will maintain, as best it can, the state of your interactions with JIRA. Your current project, current filter, etc, will remain after login. This is nice because sometimes you use JIRA without realising you are not authenticated, and logging in should disrupt your work as little as possible.

By default, seraph is configured to invalidate sessions in JIRA 4.2. This can be turned off in the seraph configuration file, typically called `seraph-config.xml`.

Here's a sample of the part of the config file that enables session invalidation:

```
<init-param>
    <param-name>invalidate.session.on.login</param-name>
    <param-value>true</param-value>
</init-param>
<init-param>
    <param-name>invalidate.session.exclude.list</param-name>
    <param-value>ASSESSIONID,dashboardPage</param-value>
</init-param>
```

In the example above you can see that in addition to the `invalidate.session.on.login` parameter which activates the feature, there is a second (optional) parameter which can hold a list of session keys which are to be excluded from the new session after login. By default, all session attributes are copied to the new session. If there are any to be excluded from this, they should be defined in a comma separated list for the `invalidate.session.exclude.list` parameter.

'Contact Administrators' Link has been Removed

Please note that the '**Contact Administrators**' link has been removed from the JIRA footer. If you have users who rely on this link, please publish a list of administrators elsewhere before upgrading to JIRA 4.2.

GreenHopper Versions 5.2 and Older are Not Compatible

If you use the GreenHopper plugin, please note that only version 5.3 is compatible with JIRA 4.2.

Crowd Versions 2.0.6 and Older are Not Supported

If you have integrated your JIRA instance with Atlassian Crowd, please upgrade to Crowd 2.0.7. Crowd versions up to and including 2.0.6 will not work with JIRA 4.2. See the Crowd 2.0.7 release notes.

Users of Fisheye/Crucible

Please note that there is a compatibility issue with the `crowd-integration-client-2.0.7.jar` and Fisheye/Crucible that is described in this JIRA issue.

Various Platforms are No Longer Supported

As mentioned in our End of Support Announcements for JIRA page, from JIRA 4.2, we will no longer provide support for the following platforms with JIRA:

- Oracle WebLogic and IBM WebSphere applications servers, as mentioned in Deprecated Application Servers for JIRA announcement,
- Java Platform 5, as mentioned in the Deprecated Java Platforms for JIRA announcement and
- Internet Explorer 6 web browser, as mentioned in Deprecated Web Browsers for JIRA announcement.

Internet Exporer 7 and 8 users must have "native XMLHTTP support" enabled

There is a known bug that will make transitioning issues impossible from Internet Explorer 7 and 8 when "native XMLHTTP support" is disabled. See http://jira.atlassian.com/browse/JRA-22609 or the JIRA Knowledge Base for details.

Other Known Issues

Before you begin the upgrade, please check for known issues. Sometimes we find out about a problem with the latest version of JIRA after we have released the software. In such cases we publish information about the known issues in the JIRA Knowledge Base. Please check for known issues and follow the instructions to apply any necessary patches.

If you encounter a problem during the upgrade and cannot solve it, please create a support ticket and one of our support engineers will help you.

Upgrading from JIRA 4.0 and Earlier

In addition to the points listed above, please read the *Upgrade Guide* for every version you are skipping during the upgrade, particularly the JIRA 4.0 Upgrade Guide as JIRA 4.0 introduced significant licensing and technical changes. The complete list of Upgrade Guides is available here: Production Releases.

Updating JIRA Plugins for JIRA 4.2

On this page:

- Plugin Developer Notes
  - Custom fields that require JavaScript
  - Custom fields that directly implement `GroupSelectorField`
  - Custom Issue Operations need to work without an issue being present

Plugin Developer Notes

JIRA 4.2 introduces several changes that may break existing plugins which are not bundled with JIRA.

If you are using or have been involved in the development of such a plugin, it may need to be updated to work with JIRA 4.2. Please read through the information below to see if any of this content is relevant to your plugin.

If you are using a plugin developed by a third party, please check with the plugin's author to see if the plugin has been tested with JIRA 4.2.

- Custom fields that require JavaScript
- Custom fields that directly implement `GroupSelectorField`
- Custom Issue Operations need to work without an issue being present

> *This is not the complete list of changes for JIRA 4.2 — It only describes changes in JIRA 4.2 that will impact plugin developers.*

Custom fields that require JavaScript

Use the following pattern to execute JavaScript when dialogs are loaded. The `dialogContentReady` event is fired after the dialog boxes are loaded. This pattern is mainly useful when adding behaviour to, or interacting with, custom fields/forms.

```
AJS.$(function () {

    function initMyCustomField(dialog) {
        AJS.$(dialog || document.body).each(function () {
            var $dialog = AJS.$(this);
            ...
        });
    }

    // Init the control on DOM ready
    initDatePicker();

    // Bind the init function so it runs when the dialog loads
    AJS.$(document).bind("dialogContentReady", function (e, dialog) {
        initDatePicker(dialog.get$popupContent());
    });

});
```

Custom fields that directly implement `GroupSelectorField`

To address JRA-20562, the `GroupSelectorField` marker interface (typically used for User and Group Picker-based custom fields), has been changed to an interface with the following method:

```
Query getQueryForGroup(final String fieldID, String groupName);
```

The intention of this method is to return a query that takes into account any case folding that has been done by the underlying custom field type. For instance, JIRA appends `_raw` to the field id before indexing `GroupSelectorField` objects. Hence, if you want similar behaviour in your custom field, you would define the following (as used within JIRA):

```
public Query getQueryForGroup(final String fieldID, String groupName)
    {
        return new TermQuery(new Term(fieldID+"_raw",groupName));
    }
```

Custom Issue Operations need to work without an issue being present

JIRA 4.2 permits the use of keyboard shortcuts for custom issue operations on the Issue Navigator. To do this, we render on an Issue Navigator page (but hide from the user) all issue operation links defined in the system, without a specific issue being available in the context for the issue operation. Custom issue operations must be able to gracefully handle this scenario, or they will be ignored from this list and plugin developers will not be able to attach keyboard shortcuts to their issue operations.

> Specifically, issue operation web-items need to handle the case where the `JiraHelper` does not provide an issue in its context!

Furthermore, issue operation URLs need to follow a specific format in order for keyboard shortcut actions to be attached to them via JavaScript. Here is an example of a valid issue operation URL format:

```
<a id="assign-issue" class="issueaction-assign-issue"
href="/jira/secure/AssignIssue!default.jspa?id={0}&returnUrl=/secure/IssueNavigator.jspa"></a>
```

The corresponding issue operation web-item definition looks as follows:

```
<web-item key="assign-issue" name="Assign Issue Link" section="operations-top-level"
i18n-name-key="webfragments.view.issue.opsbar.operations.top.assign" weight="5">
    <label key="common.words.assign"/>
    <tooltip key="admin.issue.operations.plugin.assign.issue.name"/>
    <styleClass>issueaction-assign-issue</styleClass>
    <link linkId="assign-issue">
        /secure/AssignIssue!default.jspa?id=$issueId
    </link>
    <condition
class="com.atlassian.jira.plugin.webfragment.conditions.HasIssuePermissionCondition">
        <param name="permission">assign</param>
    </condition>
    <condition class="com.atlassian.jira.plugin.webfragment.conditions.IsIssueEditableCondition"/>
    <condition class="com.atlassian.jira.plugin.webfragment.conditions.IsFieldHiddenCondition"
invert="true">
        <param name="field">assignee</param>
    </condition>
</web-item>
```

The important part of the Issue Navigator URL is the parameter `id={0}`. The Issue Navigator will automatically substitute the `$issueId` variable with `{0}`. This will then be substituted by the JavaScript triggered by a keyboard shortcut with the currently selected issueId on the Issue Navigator.

On the issue view page, which only deals with a single issue, the `$issueId` will simply be substituted with the current issue id. The webwork action or servlet (in this case `AssignIssue`) needs to use the id URL parameter to resolve the issue.

JIRA 4.1 Release Notes

April 7, 2010

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

This release makes your JIRA experience easier and more convenient than ever. The issue UI has been redesigned for a simpler, friendlier experience, and keyboard shortcuts have been streamlined. Issues can now be actioned directly from your dashboard via a handy dropdown in the gadgets. Each issue's attachments are now displayed in an image gallery, and can all be downloaded to a single ZIP file with just one click.

The installation process has been improved by the inclusion of industry standard database drivers and a GUI database configuration tool, and JIRA Standalone is now being shipped with Tomcat 6.0.20.

JIRA 4.1 also addresses some other enhancements and fixes, notably a fix to the 'Malformed security token' error appearing in gadgets on the JIRA 4.0 dashboard.

> **JIRA Plugin Developers:**
> If you develop JIRA plugins, please refer to our guide on updating JIRA plugins for JIRA 4.1, for details on keeping your plugins compatible with JIRA 4.1.

Upgrading to JIRA 4.1 is free for all customers with active JIRA software maintenance as of April 7, 2010.

Highlights of JIRA 4.1:

- New-Look Issues
- Improved Global Keyboard Shortcuts
- 'Actions' Dropdown in Gadgets
- 'Bulk Move' Components and Versions
- New-look User Profile, 'Manage Dashboards' and 'Manage Filters'
- New JQL Functions 'lastLogin' and 'currentLogin', and Fields 'Voter' and 'Watcher'
- List of Logged-In Users
- List of Upgrade History
- Time Tracking now accepts Fractions
- Image Gallery
- Download Attachments as a ZIP
- Customisable Email Subject
- 'Heat Map' Gadget
- Database Configuration Tool
- XSRF protection
- Database Drivers Included
- Other Enhancements and Fixes
- Plus over 80 other fixes and improvements

Thank you for your feedback:

More than 33 new feature requests implemented
More than 658 votes fulfilled

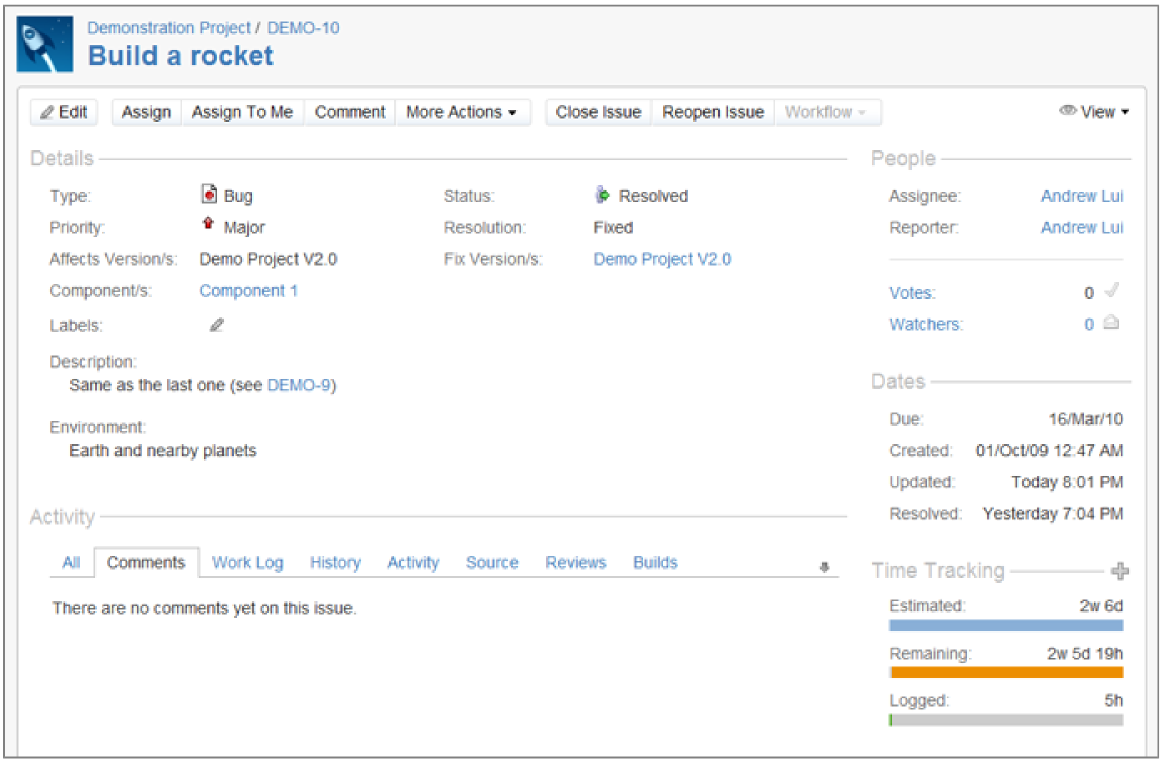
Your votes and issues help us keep improving our products, and are much appreciated.

Upgrading to JIRA 4.1
JIRA 4.1 can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 4.1 Upgrade Guide.

Highlights of JIRA 4.1

New-Look Issues

The 'View Issue' and 'Edit Issue' screens have been simplified and modernised:



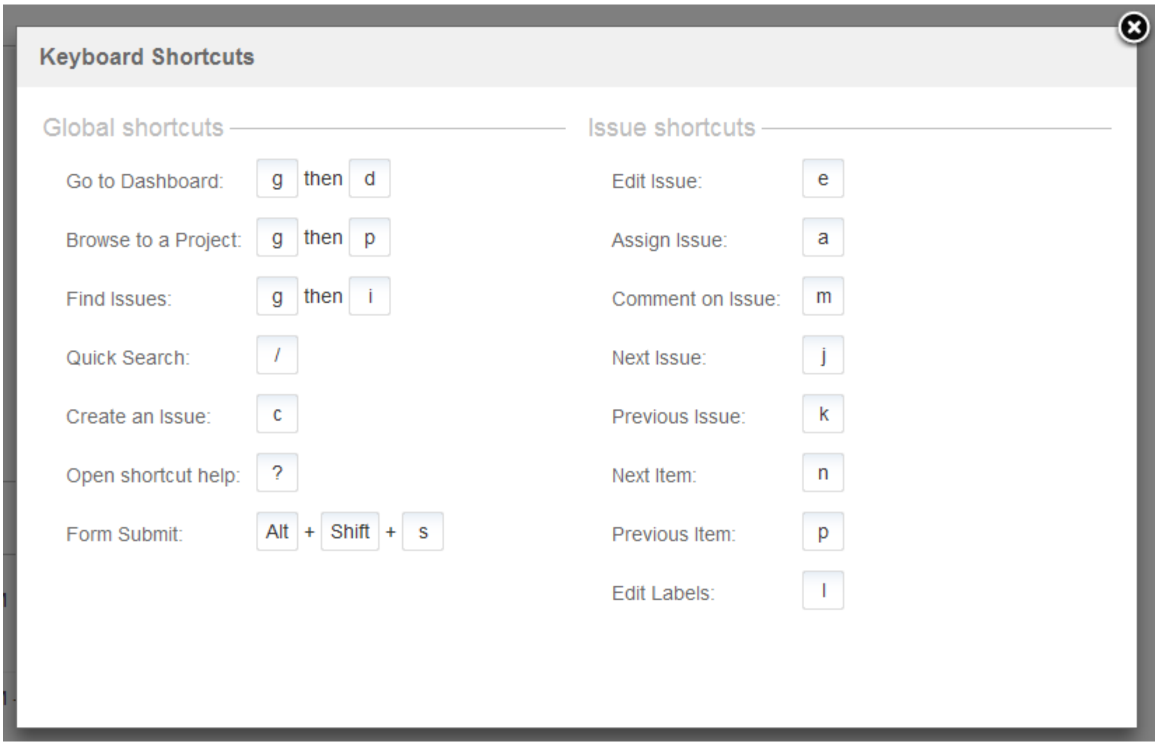
See the documentation for details.

^Top

Improved Global Keyboard Shortcuts

JIRA now has improved global shortcuts to provide quick navigation around JIRA. You can now go directly to the dashboard from anywhere else in JIRA, simply by typing 'g' then 'd'. Type 'g' then 'p' to jump to the browse project page, or type 'c' to start creating an issue. You can find what other keyboard shortcuts are available by typing '?', to bring up the Keyboard Shortcuts dialog box.

Screenshot: Keyboard Shortcuts Dialog Box



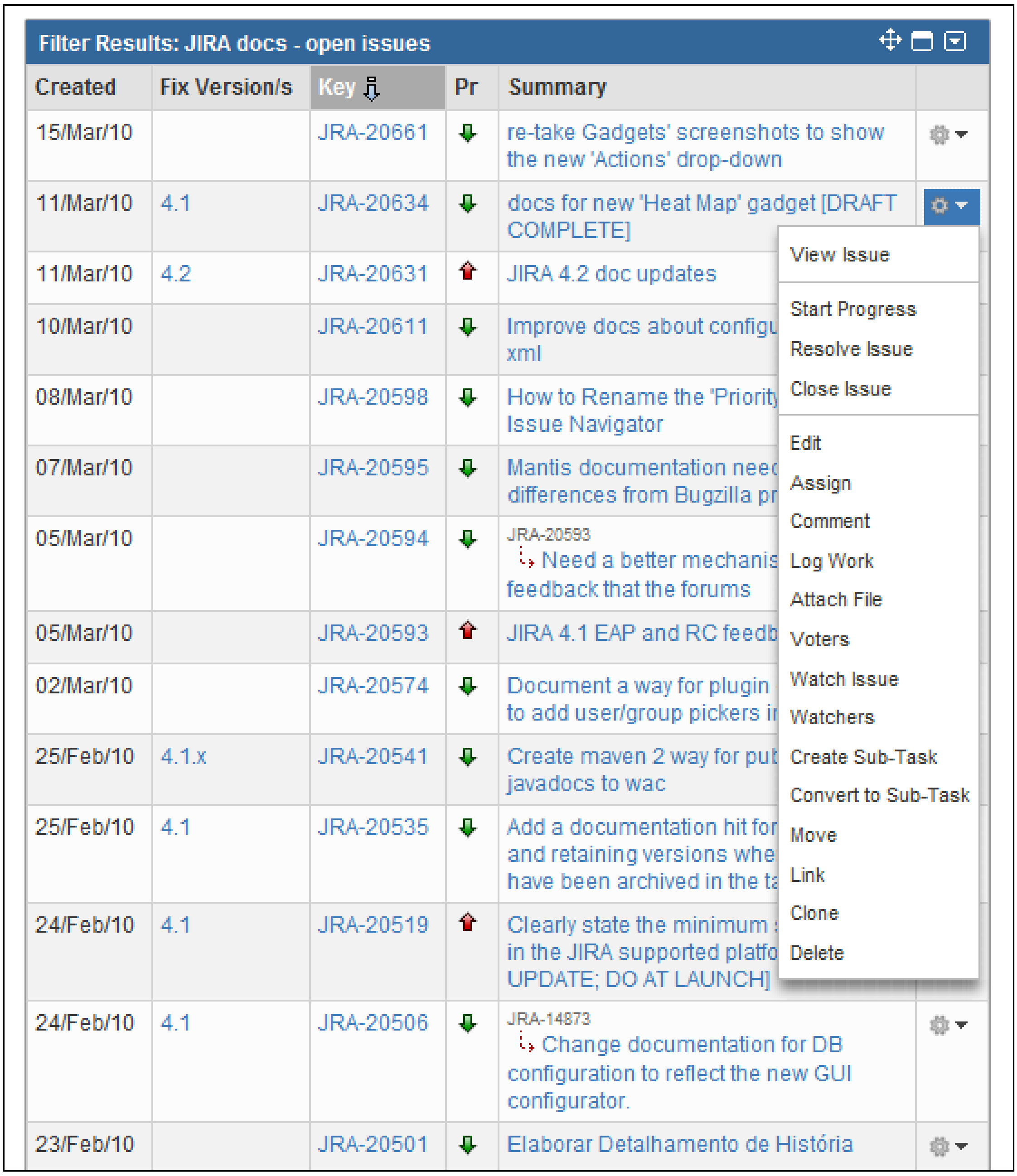
See the documentation for full details.

> **JIRA Plugin Developers:**
> This feature is implemented as a plugin, which will facilitate the addition of more keyboard shortcuts in future JIRA versions and iterations.

^Top

'Actions' Dropdown in Gadgets

You can now action issues directly from your JIRA dashboard:



^Top

4

'Bulk Move' Components and Versions

When performing a 'Bulk Move' of issues from one project to another, JIRA now allows mapping of old project values (for Components, Versions) to new values, using multiple edit controls and a simple name matching strategy to preselect the smart choice.

See the documentation for details.

^Top

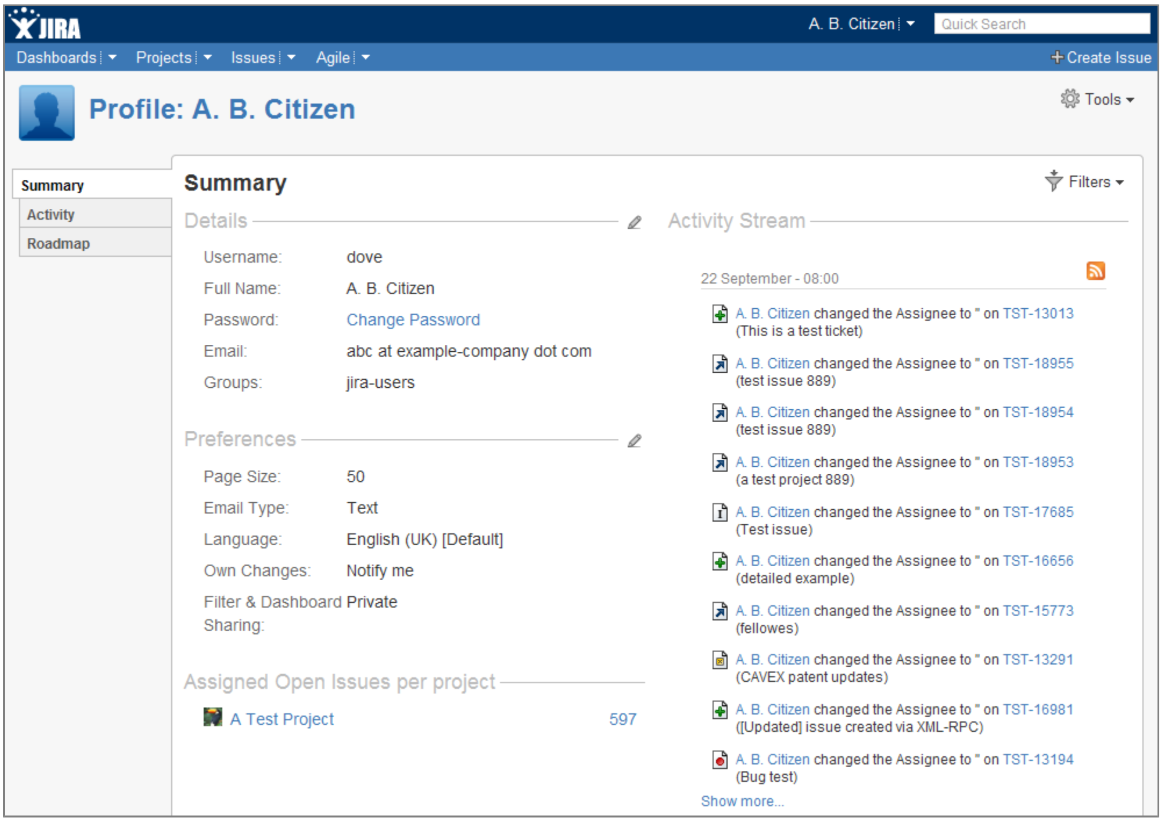
5

New-look User Profile, 'Manage Dashboards' and 'Manage Filters'

User Profile

JIRA User Profile screens have been redesigned to show you more details about your personal information and preferences, and to make it easier to access other useful features associated with your account.

Screenshot: The New-Look User Profile Summary Screen

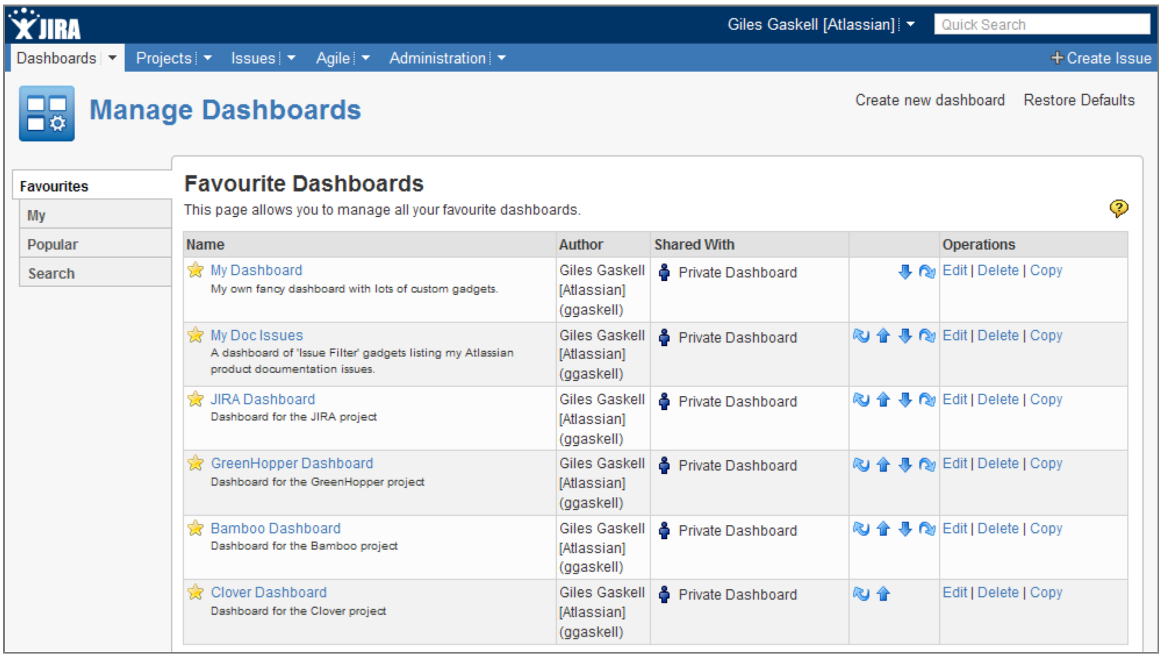


Please see the documentation for more details.

Manage Dashboards

The interface for the Manage Dashboards screens have been streamlined to blend in with the rest of the JIRA 4.1.

Screenshot: The New-Look Manage Dashboards Screen

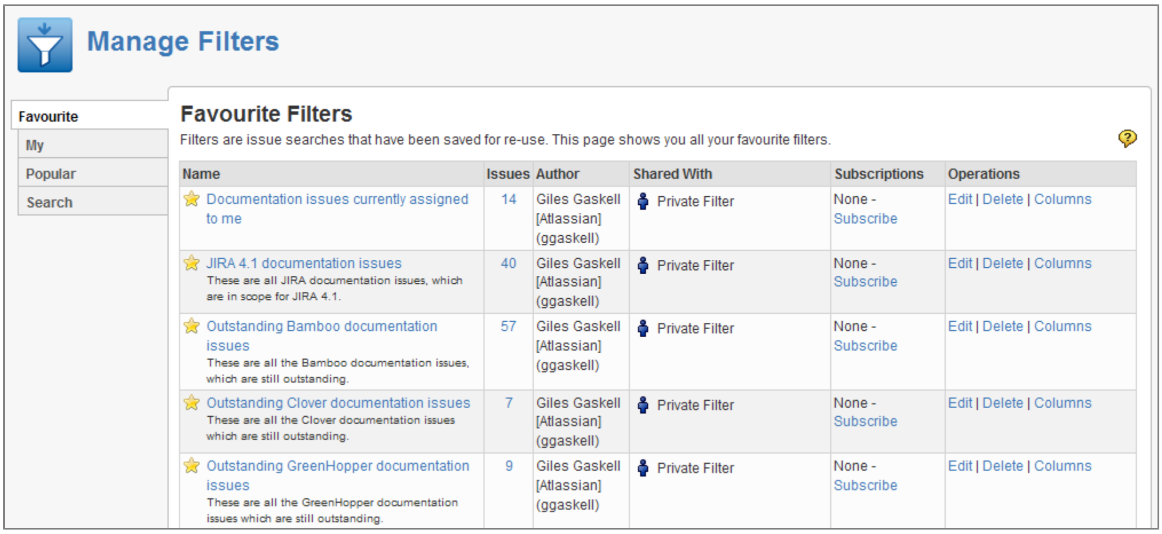


Please see the documentation for more details.

Manage Filters

Like the Managed Dashboards screens, the interface of the Manage Filters screens have also been streamlined to blend in with the rest of the product.

Screenshot: The New-Look Manage Filters Screen



Please see the documentation for more details.

^Top

6

New JQL Functions 'lastLogin' and 'currentLogin', and Fields 'Voter' and 'Watcher'

Now you can do JQL searches based on your current session, e.g. find all issues that have been created since you last logged in to JIRA:

```
created > lastLogin()
```

You can also search for issues that you (or anyone else) are watching or have voted for:

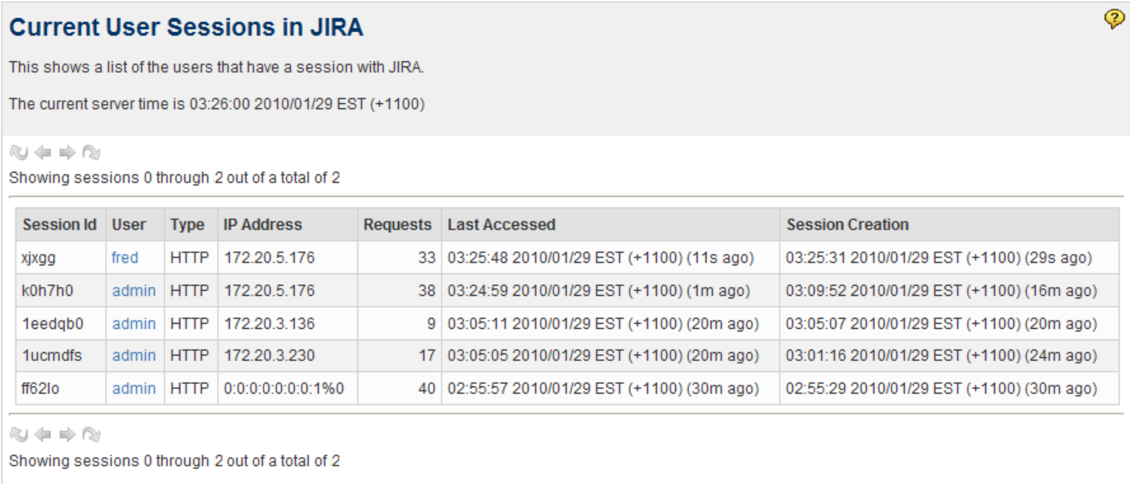
```
voter in membersOf("jira-developers")
```

See the documentation for details.

7

List of Logged-In Users

Need to see who's currently using JIRA? Now you can take a look:


Current User Sessions in JIRA

This shows a list of the users that have a session with JIRA.

The current server time is 03:26:00 2010/01/29 EST (+1100)

Showing sessions 0 through 2 out of a total of 2

Session Id	User	Type	IP Address	Requests	Last Accessed	Session Creation
xjxgg	fred	HTTP	172.20.5.176	33	03:25:48 2010/01/29 EST (+1100) (11s ago)	03:25:31 2010/01/29 EST (+1100) (29s ago)
k0h7h0	admin	HTTP	172.20.5.176	38	03:24:59 2010/01/29 EST (+1100) (1m ago)	03:09:52 2010/01/29 EST (+1100) (16m ago)
1eedqb0	admin	HTTP	172.20.3.136	9	03:05:11 2010/01/29 EST (+1100) (20m ago)	03:05:07 2010/01/29 EST (+1100) (20m ago)
1ucmdfs	admin	HTTP	172.20.3.230	17	03:05:05 2010/01/29 EST (+1100) (20m ago)	03:01:16 2010/01/29 EST (+1100) (24m ago)
ff62lo	admin	HTTP	0:0:0:0:0:0:0:1%0	40	02:55:57 2010/01/29 EST (+1100) (30m ago)	02:55:29 2010/01/29 EST (+1100) (30m ago)

Showing sessions 0 through 2 out of a total of 2

^Top

8

List of Upgrade History

Just for the record (and to assist with troubleshooting, etc), the System Info page now shows you a list of the upgrades that have been performed on your JIRA system.

^Top

9

Time Tracking now accepts Fractions

Ever wanted to enter `1.5 hours`, instead of `90 minutes`? Now you can.

^Top

10

Image Gallery

Each issue's attached images are now displayed for your convenience:

See the documentation for details.

^Top

11

Download Attachments as a ZIP

Another handy time-saver — simply click to download all of an issue's attachments as a single ZIP file:

See the documentation for details.

^Top

12

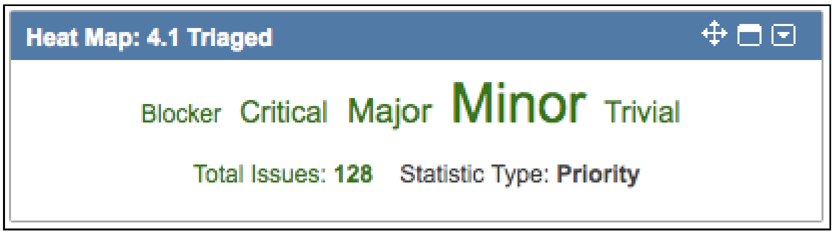
Customisable Email Subject

We are very pleased to announce that this much-requested feature is now a reality: you can now customise the subject of your JIRA-generated emails. See the documentation on Customising Email Content for details.

^Top

'Heat Map' Gadget

Brand new gadget to show a heatmap of a key statistic in a bunch of issues:



For more details, please see Adding the Heat Map Gadget.

^Top

Database Configuration Tool

JIRA 4.1 ships with a new GUI application that that will help you set up and test your database connection.

For more details, please see the documentation on Connecting JIRA to a Database.

^Top

XSRF protection

JIRA now implements a 'form token checking' mechanism. This provides JIRA with the ability to validate the origin and intent of key browser requests, thus adding an additional level of security against cross-site request forgery (XSRF).

For details, please see the documentation on Form Token Handling.

^Top

Database Drivers Included

To save you time when installing or upgrading JIRA, we are now shipping database drivers for MySQL, Postgres and MSSQL. Oracle drivers will be included soon.

^Top

Other Enhancements and Fixes

- The 'Malformed security token' error in JIRA dashboard gadgets was fixed – If a user logged in to JIRA and left the JIRA dashboard open for a period of time, gadgets on the Dashboard would generate a 'Malformed security token' error.

^Top

18

Plus over 80 other fixes and improvements

The top 50 most popular issues resolved in JIRA 4.1 are listed below. Click here for the full list.

JIRA Issues (50 issues)

Key	Type	Summary	Priority	Status
JRA-3609		Customize mail subject line		Resolved
JRA-19248		Dashboard gadgets fail with HTTP 401 malformed security token, when left unattended for some time		Resolved
JRA-1655		Ability to see users currently logged in		Resolved
JRA-8248		Retain values checkbox for Bulk Move should preserve versions or components based on version and components names		Resolved
JRA-2176		Time Tracking Config - Working hours with fractions (ie 7h 30m)		Resolved
JRA-7711		Allow code and noformat sections, and long text in general, in Wiki or Plain textfields to scroll horizontally		Resolved
JRA-5789		Transition order should be sortable for each Step Name		Resolved
JRA-6175		Passwords sent as clear text in email		Resolved
JRA-6514		Search by user name in admin section		Resolved
JRA-865		Display new items since I last logged in		Resolved
JRA-10611		"My Watches" portlet shows resolved issues.		Resolved
JRA-20050		Activity stream in Norwegian fails to load javascript resources		Resolved
JRA-12321		Ability to save multiple attachments (or all of them) at one time.		Resolved
JRA-15277		Soap API Should Support Trusted Applications		Resolved
JRA-13142		Cannot add a custom text renderer plugin		Resolved
JRA-19617		IE 6.0 compatibility: Activity Stream Gadgets come up with JS errors		Resolved
JRA-12380		Implement user lockout mechanism to stop bruteforce login attacks		Resolved
JRA-19853		Investigate and fix duplicate version numbers found during Package Scanning.		Resolved
JRA-12943		Log work interface should accept fractional durations		Resolved
JRA-19995		jiraform is logging harmless but incessant log messages		Resolved
JRA-18436		votedIssues() & watchedIssues() - ability to take params to support users		Resolved

JRA-6715		Allow filtering by number of votes		Resolved
JRA-19530		Activity Stream throws NFE when parsing a changeitem for a custom field with the name "status"		Resolved
JRA-20144		Customization of notification email subject		Resolved
JRA-19822		2d filter Stats gadget takes along time to scroll when there is a width overflow		Resolved
JRA-12662		It's a permAlink, dummy		Resolved
JRA-13569		CAPTCHA should be possible to enable on user login page		Resolved
JRA-14306		Sorting Select List For Permission List		Resolved
JRA-13819		Add "Watch it" and "Vote For it" toggles next to totals		Resolved
JRA-16918		Lucene SegmentReader synchronization issues		Resolved
JRA-11144		Don't send passwords in emails when External password/user management enabled		Resolved
JRA-20428		Left or Right Clicking on a Dashboard with ~30 gadgets causes Firefox to issue slow script warning.		Resolved
JRA-20429		There is a noticible delay when Left or Right Clicking on a Dashboard with ~30 gadgets.		Resolved
JRA-20621		Quick Links not showing anything in JIRA 4.0.2 for Firefox and Safari but IE 6, 7, & 8 are working fine		Resolved
JRA-3627		Display changed items since I last logged in		Resolved
JRA-20592		Add ability to log time worked using decimals		Closed
JRA-17239		Improve the help text on the Announcment Banner screen		Resolved
JRA-15605		The use of existing CAPTCHA after a certain number of unsuccessful login attempts		Resolved
JRA-5169		Avoid generating useless SQL rollback and commit queries		Resolved
JRA-20705		Provide javadoc in the maven repository please		Resolved
JRA-19882		Strike through behaviour to be explain in the documentation		Resolved
JRA-14173		Display upgrade history in System Info		Resolved
JRA-14540		setenv.sh in standalone should be tweaked to have more pre-configured options		Resolved
JRA-20678		Searching for a user in JQL by Fullname or Email address is very inefficient, and can lead to excessive memory usage.		Resolved
JRA-19814		Watchers can be added to a project without having rights in that project		Resolved
JRA-19515		watchedIssues() JQL function is very slow		Resolved
JRA-13873		Convert issue to subtask operation isn't sorted correctly on operations menu		Resolved
JRA-14494		NullPointerException thrown when clicking the "Start" watching link in the "Manage Watch List" panel and not logged in		Resolved

JRA-13755	Translation of time tracking estimates not working		Resolved
JRA-19305	Add heatmap gadget		Resolved

^Top

JIRA 4.1 Upgrade Guide

On this page:

- Upgrading from JIRA 4.0 to 4.1
  - General Upgrade Instructions
  - New Location of JIRA Log Files
  - Changes to Plugins
  - Form Token Handling
  - Customers with Crowd Integration
- Upgrading from JIRA 3.13 and earlier

Upgrading from JIRA 4.0 to 4.1

General Upgrade Instructions

Please ensure that you follow the instructions in the general JIRA upgrade guide (non-version specific), as well as the JIRA 4.1 specific instructions in the sections below. The general upgrade guide contains important tasks that are essential for getting your upgraded JIRA instance to work correctly (e.g. merging `jira-application.properties` customisations from the old instance to the upgraded instance).

New Location of JIRA Log Files

As of 4.1, JIRA no longer writes logs in your working directory. All logs are now written to the `$JIRA_HOME/log` directory.

Changes to Plugins

Please read Updating JIRA Plugins for JIRA 4.1.

Form Token Handling

JIRA 4.1 employs a new token authentication mechanism, which is used whenever JIRA actions are performed either through link request or form submission. This provides JIRA with the means to validate the origin and intent of the request, thus adding an additional level of security against cross-site request forgery. While the core JIRA product and its bundled plugins use this token handling mechanism by default, non-bundled plugins or those developed by third parties may not.

Therefore, if you are a JIRA plugin developer, please refer to the Form Token Handling documentation for details on how to incorporate this token handling mechanism into your JIRA plugin.

If you choose to implement form token handling into your JIRA plugin, please be aware of the following points:

- Any functions that use screen scraping, such as the 'create sub-task' function in FishEye, will be broken.
- REST API end points will not be affected *unless* they use form encoding.

Form token checking is enabled by default in JIRA 4.1. However, JIRA administrators can disable it on their site by following the instructions in Disabling Form Token Checking.

Customers with Crowd Integration

If you use Crowd with JIRA, please be aware that when you upgrade to JIRA 4.1, the `seraph-config.xml` file located in `JIRA/atlassian-jira/WEB-INF/classes/` will be overwritten to include a new element:

```
<elevatedsecurityguard class="com.atlassian.jira.security.login.JiraElevatedSecurityGuard"/>
```

This element is required for security features in JIRA 4.1.

After upgrading to JIRA 4.1, however, you may notice problems with the login gadget. For more information, please refer to JRA-21205.

If you encounter these problems, please run through step 2 (Configuring JIRA to talk to Crowd) of Integrating Crowd with Atlassian JIRA procedure to ensure that Crowd is successfully reconfigured with JIRA. If you had made any customisations to any of the files throughout this procedure prior to upgrading to JIRA 4.1 (for example, the `seraph-config.xml` file), then you will need to re-integrate these customisations after the upgrade process.

Upgrading from JIRA 3.13 and earlier

In addition to the points listed above, please read the *Upgrade Guide* for every version you are skipping during the upgrade, particularly the

JIRA 4.0 Upgrade Guide as JIRA 4.0 introduced significant licensing and technical changes. The complete list of Upgrade Guides is available here: Production Releases.

Updating JIRA Plugins for JIRA 4.1

On this page:

- Plugin Developer Notes
  - Dashboard API changes
  - Issue Operation module type is no longer available
  - IssueService should be used for performing issue operations
  - User & Date Customfields
  - Form Token Handling
- JIRA 4.1 Early Access Program (EAP)

Plugin Developer Notes

JIRA 4.1 introduces several changes that may break existing plugins. If you are using a plugin that is not shipped with JIRA, the plugin may need to be updated to work with JIRA 4.1. If the plugin was written by you, please read through the information below and see if any of it is relevant to your plugin. If you are using a plugin written by a third party, please check with the plugin's author to see if the plugin has been tested with JIRA 4.1.

- Dashboard API changes
- Issue Operation module type is no longer available
- IssueService should be used for performing issue operations
- User & Date Customfields
- Form Token Handling

Please note that this is not the complete list of changes for JIRA 4.1; it is just the changes that plugin developers are likely to encounter most often.

Dashboard API changes

The `PortletConfigurationStore` has had the following method renamed in JIRA 4.1:

- **old name** (introduced in JIRA 4.0): addLegacyGadget
- **new name** (changed in JIRA 4.1): addLegacyPortlet

In JIRA 4.1 the `PortalPage` interface has also been updated to become a final concrete class. The `PortalPageImpl` has been removed. Instances of the `PortalPage` final class can now be constructed using the `PortalPage.Builder` class. If your plugin was using the `PortalPage` interface it will need to be re-compiled against JIRA 4.1 to use the new `PortalPage` class.

Issue Operation module type is no longer available

The `IssueOperation` module type, which allowed plugin developers to add their own links to the "Issue Operations" list on the "View Issue" screen, is no longer available. In JIRA 4.1+ any plugin that needs to add a new issue operation to the "View Issue" page will need to be updated to use a `Web-Item` module instead.

So for example to convert the existing "Edit Issue" operation you would have to change the following plugin defintion:

```
   <issue-operation key="edit-issue" i18n-name-key="admin.issue.operations.plugin.edit.issue.name"
name="Edit this issue" class="com.atlassian.jira.issue.operations.EditIssueOperation"
state='enabled'>
        <resource type="velocity" name="view" location="templates/plugins/operations/editissue.vm"
/>
        <order>80</order>
    </issue-operation>
```

...to be a Web-Item:

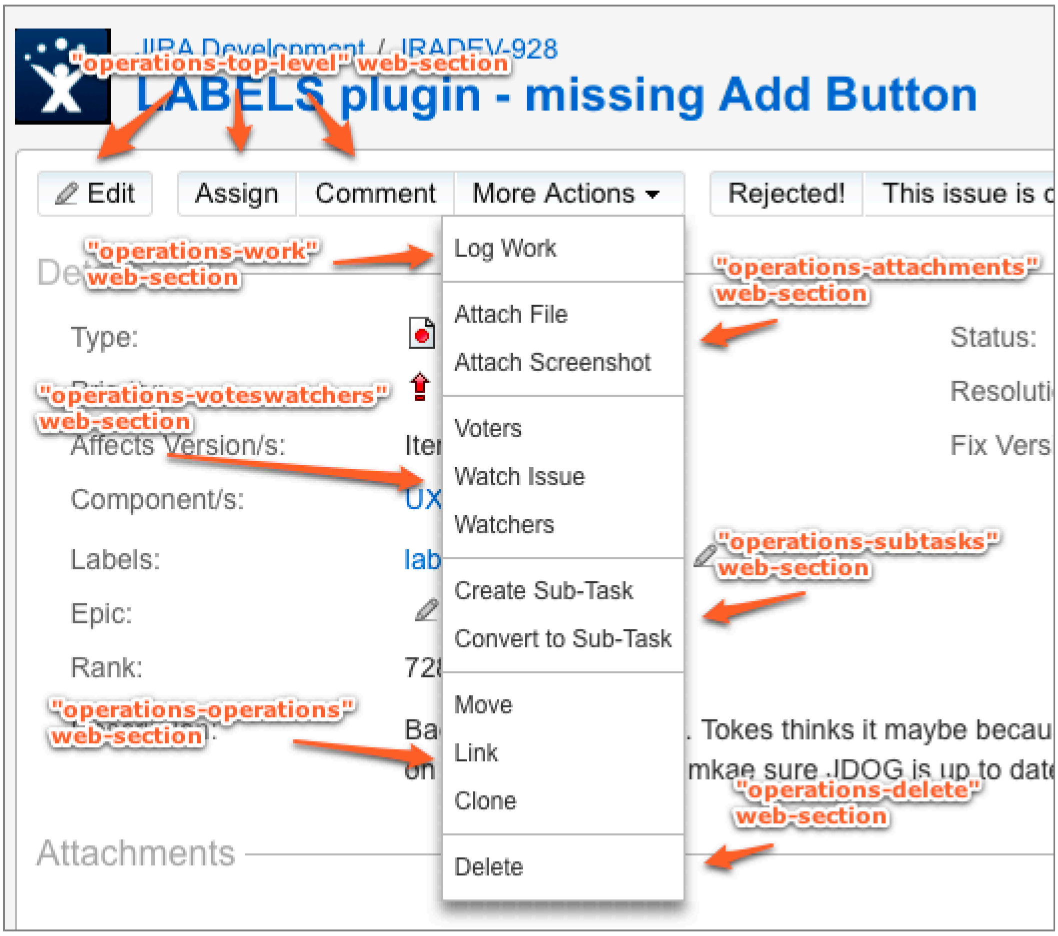
```
            <web-item key="edit-issue"
i18n-name-key="webfragments.view.issue.opsbar.operations.top.edit" name="Edit this issue"
section="operations-top-level" weight="1">
                <label key="common.words.edit"/>
                <tooltip key="admin.issue.operations.plugin.edit.issue.name"/>
                <link linkId="edit-issue">
                    /secure/EditIssue!default.jspa?id=${issue.id}
                </link>
                <condition
class="com.atlassian.jira.plugin.webfragment.conditions.IsIssueEditableCondition"/>
                <condition
class="com.atlassian.jira.plugin.webfragment.conditions.HasIssuePermissionCondition">
                    <param name="permission">edit</param>
                </condition>
                <condition
class="com.atlassian.jira.plugin.webfragment.conditions.ContextContainsCondition" invert="true">
                    <param name="context-key">display-context</param>
                    <param name="context-value">view-issue</param>
                </condition>
             </web-item>
```

The backing `EditIssueOperation` class required previously by the Issue Operation Module is no longer required.

Issue Operation Web-Items need to be added to an appropriate Web Section. The default structure for the issue operation sections is as follows:

- web-section key="opsbar-operations" name="Ops Bar Operations Section" location="view.issue.opsbar"
  - web-section key="operations-top-level" name="Ops Bar Operations Top level Section" location="opsbar-operations"
  - web-section key="operations-work" name="Ops Bar Operations Work Section" location="opsbar-operations"
  - web-section key="operations-attachments" name="Ops Bar Operations Attachments Section" location="opsbar-operations"
  - web-section key="operations-voteswatchers" name="Ops Bar Operations Votes & Watchers Section" location="opsbar-operations"
  - web-section key="operations-subtasks" name="Ops Bar Operations Subtask Section Section" location="opsbar-operations"
  - web-section key="operations-operations" name="Ops Bar Operations Operations Section Section" location="opsbar-operations"
  - web-section key="operations-delete" name="Ops Bar Operations Delete Section Section" location="opsbar-operations"

This structure gives the following default menu:



Plugin developers can add an issue operation `web-item` to any of the default menu sections, or define their own menu web-section and add it there.

IssueService should be used for performing issue operations

JIRA 4.1 introduces a new `IssueService` for performing operations (e.g. create/read/update/delete) on issues, which makes it much easier to perform issue operations from within a plugin. Plugin developers are strongly encouraged to change their plugins to use the new `IssueService`. The existing "back-end Actions" (e.g. `ISSUE_UPDATE`, `ISSUE_DELETE`) have been deprecated in favour of the new `IssueService` and may be removed in future releases of JIRA. The `IssueManager` class should also no longer be used directly to create or retrieve issues, as the new `IssueService` provides more robust validation and error handling.

For more information please see the detailed documentation on the `IssueService`.

User & Date Customfields

With the new View Issue page in JIRA 4.1, Date and User fields are grouped together in their own sections.

In order for Customfields to be placed in either section, their implementation of CustomFieldType must also implement either DateField or UserField.

DateField.java

```
/**
 * A marker interface to mark all date fields available in the system.  Please note that for
custom fields, the
 * custom field type needs to be marked by this interface.
 *
 * @since v4.0
 */
public interface DateField
{
}
```

UserField.java

```
/**
 * A marker interface to mark all user fields available in the system.  Please note that for
custom fields, the
 * custom field type needs to be marked by this interface.
 *
 * @since v4.0
 */
public interface UserField
{
}
```

Form Token Handling

JIRA 4.1 employs a new token authentication mechanism, which is used whenever JIRA actions are performed either through link request or form submission. This provides JIRA with the means to validate the origin and intent of the request, thus adding an additional level of security against cross-site request forgery. While the core JIRA product and its bundled plugins use this token handling mechanism by default, non-bundled plugins or those developed by third parties may not.

Therefore, if you are a JIRA plugin developer, please refer to the Form Token Handling documentation for details on how to incorporate this token handling mechanism into your JIRA plugin.

If you choose to implement form token handling into your JIRA plugin, please be aware of the following points:

- Any functions that use screen scraping, such as the 'create sub-task' function in FishEye, will be broken.
- REST API end points will not be affected *unless* they use form encoding.

Form token checking is enabled by default in JIRA 4.1. However, JIRA administrators can disable it on their site by following the instructions in Disabling Form Token Checking.

JIRA 4.1 Early Access Program (EAP)

Pre-release versions of JIRA 4.1 can be downloaded from our main Atlassian website or from one of the links below.

JIRA plugin developers and other interested parties can download and install these pre-release versions to:

- Help update plugins for JIRA 4.1 compatibility and
- Check out JIRA 4.1's new features.

Do not use pre-release JIRA builds in production!

Beta releases should not be used in production environments as they may still contain bugs and are not officially supported. Please use these builds at your own risk.

You can download one of the following pre-release JIRA beta distributions that best suits your needs:

- JIRA 4.1.0-beta Enterprise - WAR/EAR (TAR.GZ Archive)
- JIRA 4.1.0-beta Enterprise - WAR/EAR (ZIP Archive)
- JIRA 4.1.0-beta Enterprise - Standalone (ZIP Archive)

JIRA 4.1.2 Release Notes

18 June 2010

The Atlassian JIRA team is proud to announce the release of **JIRA 4.1.2**. This point release is a **highly recommended upgrade** as it contains important fixes to security vulnerabilities — please refer to the JIRA Security Advisory 2010-06-18 for details.

This point release also contains over 40 fixes and improvements, notably including:

- **New 'Comment' button** — You can now add comments via a 'Comment' button at the end of the 'View Issue' page. Clicking this button opens a large text box immediately below the last comment, into which you can add your new comment. This function is useful when you want to reply to recently added comments. For more information, please refer to Commenting on an Issue.
- **'HttpOnly' Session Cookies** — To improve the security of JIRA, JIRA standalone distributions (version 4.1.2 and later) now implement 'HttpOnly' session ID cookies, as indicated in our Security Advisory. Please refer to our Preventing Security Attacks guide for details on implementing 'HttpOnly' session ID cookes for JIRA EAR-WAR distributions.

Please also note that the bundled FishEye plugin and Bamboo plugin have been updated with security improvements, which are also mentioned in our Security Advisory.

JIRA 4.1.2 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4.1 yet?
Take a look at all the new features in the JIRA 4.1 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.1.2 Upgrade Guide.

Updates and Fixes in this Release

JIRA 4.1.2 includes the following updates and bug fixes:

JIRA Issues (53 issues)

Type	Key	Summary	Priority	Status
	JRA-21531	Support Safari 5		Resolved
	JRA-21333	JIRA Calendar Plugin page should state it is a Plugin 2 plugin		Resolved
	JRA-21157	Current Jira create issues button and popdown unusable in Firefox with projects with long names		Closed
	JRA-21149	Put a new security log into JIRA so that important events can be specifically logged		Resolved
	JRA-21033	Support HttpOnly cookies		Resolved
	JRA-20673	Include a list of all known JIRA application properties in the System Info page		Resolved
	JRA-15940	Priority interface should expose a method to get the status colour/color		Resolved
	JRA-11682	Put an 'Add comment' link at the bottom of the page.		Resolved

	JRA-21624	Set of critical security vulnerabilities		Resolved
	JRA-21322	Attach Screenshot applet no longer works in 4.1.2		Resolved
	JRA-21208	Tomcat supportability on Supporte Platform page needs to be fixed		Resolved
	JRA-20964	Upgrade Link in 4.1 Installer is Broken		Resolved
	JRA-20963	SSL connector in server.xml incorrect for JIRA 4.1 Standalone		Resolved
	JRA-20940	JIRA Activity Stream gadget is broken when accessed externally using IE		Resolved
	JRA-20528	Workflow plugin modules defined in V2 plugins will sometimes not work		Resolved
	JRA-19851	Cannot authorise "Created vs Resolved Chart" gadget in Confluence		Resolved
	JRA-21397	View issue layout broken by wiki markup in comments - people and dates box shown in footer		Resolved
	JRA-21363	Voting for issue is not working on FF 3.5		Resolved
	JRA-21192	JIRA config tool does not like "escaped colons" in the jira-application.properties file		Resolved
	JRA-21190	Broken links in the Windows Installer		Resolved
	JRA-20917	Sperious Warnings Displayed at Start-up		Resolved
	JRA-20776	New comment UI is difficult to use when replying		Resolved
	JRA-20675	Can't vote for issues in JIRA 4.1-rc1		Resolved
	JRA-20620	The javascript shortenting participants, components and versions performs badly if there's a lot of options (100+)		Resolved
	JRA-20578	Shared filter queries break when users don't have browse permissions for projects in the search query		Resolved
	JRA-20554	Some operations fail with "ERROR: operator does not exist" when JIRA is connected to Postgres 8.3+		Resolved
	JRA-20417	JIRA Activity Stream gadget displays error in Confluence due to en_GB / en_UK mismatch		Resolved
	JRA-20235	Attach screenshot link doesn't work if group name includes "		Resolved
	JRA-20018	Non-standard HTML is generated when embedding flash movies		Resolved
	JRA-19733	Recently Created Issues Chart is no longer clickable and doesn't show hover information		Resolved
	JRA-19225	"How to Upgrade JIRA" link in JIRA installer is not pointing to right link		Resolved
	JRA-21848	NO automatically generated password for JIRA 4.0.x when password is not filled in		Resolved
	JRA-21402	AttachScreenshot applet - when you cancel the dialog, you end up with empty screenshot-redirecter.jsp popup		Resolved
	JRA-21175	Watch Issue doesn't work with Opera		Resolved

	JRA-21145	When adding comment, if window is narrow, the comment entry box is wider than the window and cannot be scrolled horizontally		Resolved
	JRA-20968	'Current User Sessions' page should say '1 through x' (not '0 through x')		Resolved
	JRA-20905	the "next issue arrow" on view issue sits in the spot of the prev issue arrow		Resolved
	JRA-20837	"ISSUE DOES NOT EXIST" heading should be sentence case		Resolved
	JRA-20712	Stalkerbar overlaps comment header when permalinks are accessed through browser address bar		Resolved
	JRA-20657	Multi User Picker autocomplete creates extra spaces in between values when selecting multiple values		Resolved
	JRA-20638	Voted Issues gadget - clicking "Include resolved issues" toggles "Show the total..."		Resolved
	JRA-20618	List of available locales is rendered in the JVM locale's language instead of the user's locale		Resolved
	JRA-20589	It's possible to create users with leading and trailing spaces when signing up for an account		Resolved
	JRA-20573	User autocomplete displays "Oops! You have already entered the value" error for a non-duplicate value		Resolved
	JRA-20291	Mac OSX install Movie wonderful - but not current		Resolved
	JRA-20241	JIRA currently cannot search for colons (:) in text fields or this feature appears to be broken.		Resolved
	JRA-19910	UserAgentUtilImpl throws NPE when user-agent HTTP header is null		Resolved
	JRA-15256	Could not find atlassian-jira.log		Resolved
	JRA-10088	Calendar in date picker gets week numbers wrong		Resolved
	JRA-21766	Documentation mistake, 'Configure' instead of 'Screen'		Resolved
	JRA-20198	Superfluous text in Issue Navigator when a filter is modified in Advanced mode		Resolved
	JRA-19714	Misleading error for a deactivated user trying to log into Jira		Resolved
	JRA-3436	Image thumbnails not displayed when image content-type is "image/pjpeg"		Resolved

JIRA 4.1.2 Upgrade Guide

Upgrading from JIRA 4.1 or 4.1.1 to 4.1.2

Please follow the JIRA general upgrade instructions, plus note the following:

- A loophole has been closed whereby users who have the 'JIRA Administrators' permission but not the 'JIRA Users' permission were previously able to log in to JIRA. After the upgrade to JIRA 4.1.2, if you find that JIRA administrators can no longer log in, please check that they have been granted the 'JIRA Users' permission (see Managing Global Permissions).
- For JIRA instances connected to Atlassian Crowd, a loophole has been closed whereby users who do not have the 'JIRA Users' permission were previously able to log in to JIRA via Crowd Single Sign On (SSO). After the upgrade to JIRA 4.1.2, if you find that users can no longer login, please check that they have been granted the 'JIRA Users' permission (see Managing Global Permissions).

Upgrading from JIRA 4.0.x and earlier

In addition to the above, please read the JIRA 4.1 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.1.1 Release Notes

21 April 2010

The Atlassian JIRA team announces the release of **JIRA 4.1.1**. This point release is a **highly recommended** upgrade as it contains important fixes to security vulnerabilities in JIRA (listed below). For more information about these security vulnerabilities and patches to fix these vulnerabilities in earlier versions of JIRA, please refer to the JIRA Security Advisory 2010-04-16.

Please also refer to the JIRA 4.1.1 Upgrade Guide for important changes in JIRA, which are designed to minimise the risk of security attacks.

JIRA 4.1.1 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4.1 yet?
Take a look at all the new features in the JIRA 4.1 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.1.1 Upgrade Guide.

Updates and Fixes in this Release

JIRA 4.1.1 includes the following updates and bug fixes:

JIRA Issues (16 issues)

Type	Key	Summary	Priority	Status
	JRA-21003	The AJP connector should always have the URIEncoding="UTF-8" set		Resolved
	JRA-20782	Save gadget setting (maximized, minimized, normal) between logon sessions		Closed
	JRA-21004	XSS and Privilege Escalation Vulnerabilities in JIRA		Resolved
	JRA-20995	Privilege escalation vulnerability when administrator access is compromised		Resolved
	JRA-20994	XSS Vulnerabilities in JIRA		Resolved
	JRA-21038	brute force password attack protection by default		Resolved
	JRA-21024	500page.jsp contains HTTP Header XSS vulnerability		Resolved
	JRA-21023	screenshot-redirecter.jsp XSS attach via the afterURL parameter		Resolved
	JRA-21022	issuelinkssmall.jsp has an XSS hole via the URL used to access it		Resolved
	JRA-21019	runportleterror.jsp contains XSS hole		Resolved
	JRA-21018	Miscellaneous support-related JSPs contain XSS holes		Resolved
	JRA-21017	Announcement Preview banner is a vector for an XSS attack		Resolved
	JRA-20665	xss vulnerability in issuelinksmall.jsp		Resolved
	JRA-21037	Group picker popup JSP has XSS hole if group names are XSS shaped		Resolved
	JRA-21150	Soap deleteProject call may try to delete an issue more than one time causing it to fail with an Exception		Resolved
	JRA-20446	Right clicking on dashboard links when there are a lot of gadgets is super slow.		Resolved

JIRA 4.1.1 Upgrade Guide

On this page:

- Upgrade Notes
    - Setting File Paths via the Administration User Interface
        - Changing JIRA's File Path Settings
        - 'Contact Administrators' Link
    - Backing Up Data to XML
    - Announcement Banner
    - Data for Support Requests
    - Differences between JIRA 4.1.1 and the Security Patches for Earlier JIRA Versions
    - Developers Note
- Upgrading from JIRA 4.1 to 4.1.1
- Upgrading from JIRA 4.0.x and Earlier

Upgrade Notes

JIRA 4.1.1 fixes several security vulnerabilities in JIRA. Patches that fix these vulnerabilities in earlier versions of JIRA are also available. Please refer to the JIRA Security Advisory 2010-04-16 or JIRA issue JRA-21004 for more information about these vulnerabilities and links to these patches.

Please be aware that these fixes have resulted in the following changes to JIRA's behaviour.

Setting File Paths via the Administration User Interface

JIRA now recognises a new variable called **`jira.paths.set.allowed`** in the `jira-application.properties` file (located in your JIRA Installation Directory).

By default, the value of this variable is set to `false`, such that it appears as `jira.paths.set.allowed=false` in the `jira-application.properties` file.

JIRA's file path settings are secure when any of the following is true:

- the `jira.paths.set.allowed` variable in `jira-atlassian.properties` is set to `false`
- the `jira.paths.set.allowed` variable in `jira-atlassian.properties` is set to anything other than `true` or its value is left blank
- the `jira.paths.set.allowed` property does not exist in `jira-atlassian.properties` or it is 'commented-out'

and the following JIRA screens:

.../secure/admin/ViewAttachmentSettings.jspa (see Configuring File Attachments)
.../secure/admin/IndexActivate.jspa (see Search Indexing)
.../secure/admin/jira/ViewServices!default.jspa (see Automating JIRA Backups)
.../secure/admin/XmlRestore!default.jspa (see Restoring Data)

will display this message:

> *Changing the attachment, index, backup or restore settings is not allowed for security reasons. You must edit jira-application.properties and explicitly set 'jira.paths.set.allowed=true'. Restart JIRA and then the path settings will be able to be changed.*

Changing JIRA's File Path Settings

If you want to change the locations for storing file attachments, backups, etc, you will need to do the following:

1. Shutdown JIRA.
2. Ensure `jira.paths.set.allowed=true` has been set in the `jira-application.properties` file and restart JIRA.
3. Perform your location changes and shutdown JIRA.
4. Secure JIRA's file path settings again by disabling the `jira.paths.set.allowed` property in `jira-application.properties` using one of the methods above.
   Although this step is optional, it is *strongly recommended* as it will minimise the risk of attack to your JIRA instance.
5. Restart JIRA.

Upon setting the value of the `jira.paths.set.allowed` variable to `true` in `jira-atlassian.properties`, this message is displayed in the screens above:

> *You have enabled the ability to change attachment, index, backup or restore path settings from within JIRA. Having this setting on can cause a known security risk. See http://jira.atlassian.com/browse/JRA-21004 for more details*
> *To re-enable stronger security, edit jira-application.properties and explicitly set 'jira.paths.set.allowed=false'. Restart JIRA and then the path settings will be NOT able to be changed.*

'Contact Administrators' Link

For security reasons, the list of JIRA administrators, which can be accessed via the 'Contact Administrators' link in the JIRA footer, will be blank unless `jira.paths.set.allowed` is set to `true` (which is not recommended — see above).

Backing Up Data to XML

JIRA now recognises another new variable called **`jira.paths.safe.backup.path`** in the `jira-application.properties` file (located in your JIRA Installation Directory).

By default, this variable is present in the `jira-application.properties` file, but it is disabled ('commented-out') and its value is an example directory path value only. If you enable the `jira.paths.safe.backup.path` variable and set its value to a valid directory, the following screen in JIRA:

.../secure/admin/XmlBackup!default.jspa (see Backing Up Data for more information)

will display this message:

> *You have named a safe backup directory. Any arbitrary backups will be written to this directory.*

Otherwise, this message is displayed:

> *You have not named a safe backup directory and hence you are not allowed to make backups for security reasons. You must edit jira-application.properties and explicitly set 'jira.paths.safe.backup.path=/to/some/safe/path'. Restart JIRA and then you will be able to make arbitrary backups. NOTE : If you are using Windows, you will need to use double \ characters, for example*
>
> ```
> d:\\some\\safe\\path
> ```

Examples of valid directory paths used with this variable:

- **UNIX-based systems (e.g. Linux or Mac OS X)**

```
jira.paths.safe.backup.path=/some/safe/path
```

- **Windows systems**

```
jira.paths.safe.backup.path=d:\\some\\safe\\path
```

JIRA's manual 'Backup Data to XML' feature will not be available unless the value of the `jira.paths.safe.backup.path` variable in `jira-application.properties` has been set to a valid path.

Announcement Banner

For security reasons, the ability to preview the Announcement Banner has been disabled.

Data for Support Requests

For security reasons, we no longer attach XML backups and logs to the emails generated by the Support Request page.

Differences between JIRA 4.1.1 and the Security Patches for Earlier JIRA Versions

The main purpose of the JIRA 4.1.1 point release was to fix several security vulnerabilities in JIRA. (Patches to fix these vulnerabilities in earlier versions of JIRA can be obtained via the JIRA Security Advisory 2010-04-16 or JIRA issue JRA-21004.)

However, that there are some differences in behaviour between JIRA 4.1.1 and the patches applied to earlier JIRA versions:

- Upon upgrading to or initially installing JIRA 4.1.1, Captcha will automatically be activated after five failed login attempts.

  If you had set the Maximum Authentication Attempts Allowed option (via the '**Administration**' -> '**Global Settings**' -> '**General Configuration**' page) to another value prior to upgrading, it will be overridden and set to 5 upon upgrading to JIRA 4.1.1. Hence, to revert this option back to your previous setting, you will need to do this manually via the 'Global Settings' -> 'General Configuration' page.

- From JIRA 4.1.1, the following additional JSP pages have been disabled and are no longer available:
  - .../secure/admin/cacheViewer.jsp
  - .../secure/admin/editworklog.jsp
  - .../secure/admin/manageyourkitprofiling.jsp
  - .../secure/admin/plugin-bundles.jsp
  - .../secure/admin/workflow-debug.jsp

Developers Note

When using the Atlassian SDK, the correct JIRA version to reference is 4.1.1.1 (not 4.1.1). See the Atlassian Plugin SDK 3.1.2 Release Notes for details.

Upgrading from JIRA 4.1 to 4.1.1

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 4.0.x and Earlier

In addition to the above, please read the JIRA 4.1 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.0 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

October 6, 2009

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

We have improved the UI to provide contextual awareness, improving the navigation and usability with features like activity streams and issue history. We have also added the most powerful searching capabilities ever seen in a bug tracker, called JIRA Query Language (JQL). The simple auto-complete entry system makes it incredibly easy for any user to create sophisticated queries.

We have completely overhauled the JIRA dashboards to make it quick and easy for anyone to create and add gadgets, move them around using drag & drop, and share dashboards with other team members. Using the new Plugins 2.0 architecture, we built new dashboards using OpenSocial. This means each JIRA dashboard is an OpenSocial container allowing you to consume any OpenSocial compliant gadgets from either Atlassian tools or other external sources. Conversly, JIRA gadgets can be exposed in any OpenSocial container (like iGoogle, and soon, Confluence).

Upgrading to JIRA 4.0 is free for all customers with active JIRA software maintenance as of October 6, 2009.

Highlights of JIRA 4.0:

- Advanced Searching
- Dashboard Gadgets
- Activity Streams
- New-look "Browse Project"
- Charting Now Comes Standard
- New-look Header
- Issue Actions in the Issue Navigator
- Project Icons
- Default Unit for Time Tracking
- "History" is now permanent
- Engine Room
- Plus over 900 other fixes and improvements

Thank you for your feedback:

More than 50 new feature requests implemented

More than 2600 votes fulfilled

Your votes and issues help us keep improving our products, and are much appreciated.

DOWNLOAD latest version

Upgrading to JIRA 4.0
JIRA 4.0 can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 4.0 Upgrade Guide. Also note that you will need to obtain a **new license key** before you can upgrade. Obtaining a new JIRA 4 license key is **free** and the key is valid for the remainder of your existing maintenance period. For details, please see the JIRA licensing changes FAQ.

Highlights of JIRA 4.0

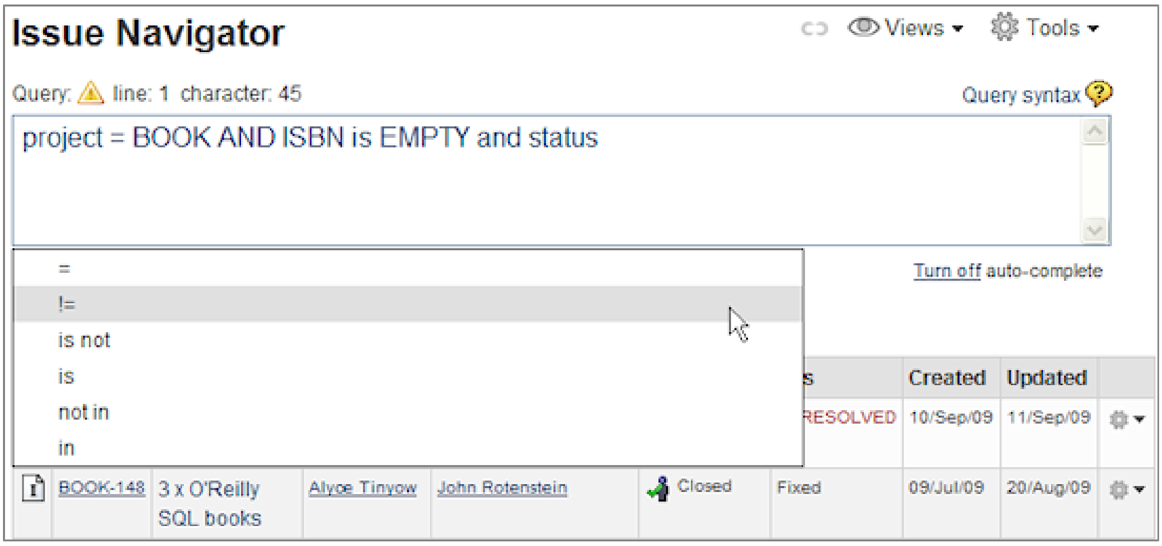
1

Advanced Searching

The power of search can never be understated, especially in a system like JIRA that sits at the centre of your development team.

JIRA Query Language (or JQL) brings search to whole new level!

JQL is a structured query language that provides support for logical operations, including AND, OR, NOT, NULL, EMPTY — even on custom fields:



Using JQL is simple even for those who don't know what "DBA" means. Just start typing and the auto-complete feature starts to suggest fields, operators and values for you to define your query.

You can now create more advanced filters such that you can stay up to date using RSS feeds & e-mail subscriptions, as well as see detailed statistics and charts, on issues that you are actually interested in.
^Top

2

Dashboard Gadgets

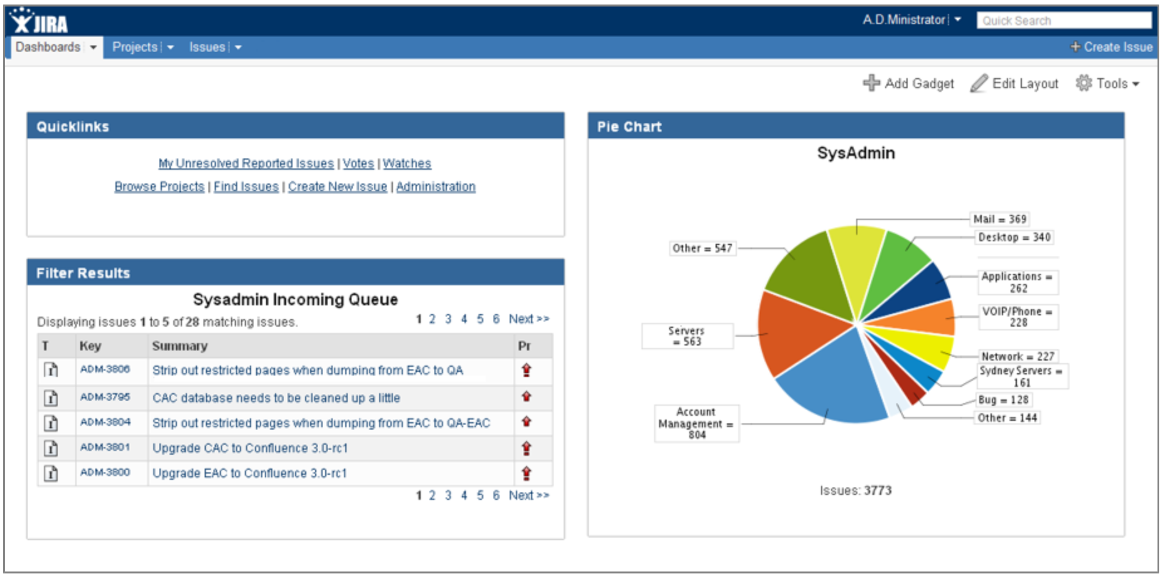
Whether you are tracking bugs or managing your entire development process, JIRA dashboards let you stay up to date on what matters most.

The new-look JIRA dashboard not only looks awesome, it now uses industry-standard 'gadgets'. So you can add external gadgets to your JIRA dashboard, as well as displaying JIRA gadgets in other places (such as iGoogle).

You can easily customise your dashboard by choosing a different layout, adding more gadgets, dragging the gadgets into different positions and changing the look of individual gadgets.

What's happened to your favourite JIRA portlets? Don't worry, every portlet that previously shipped with JIRA has been converted to a gadget.

If you are a plugin developer and have created your own portlets, see the instructions for converting your portlets to gadgets.



^Top

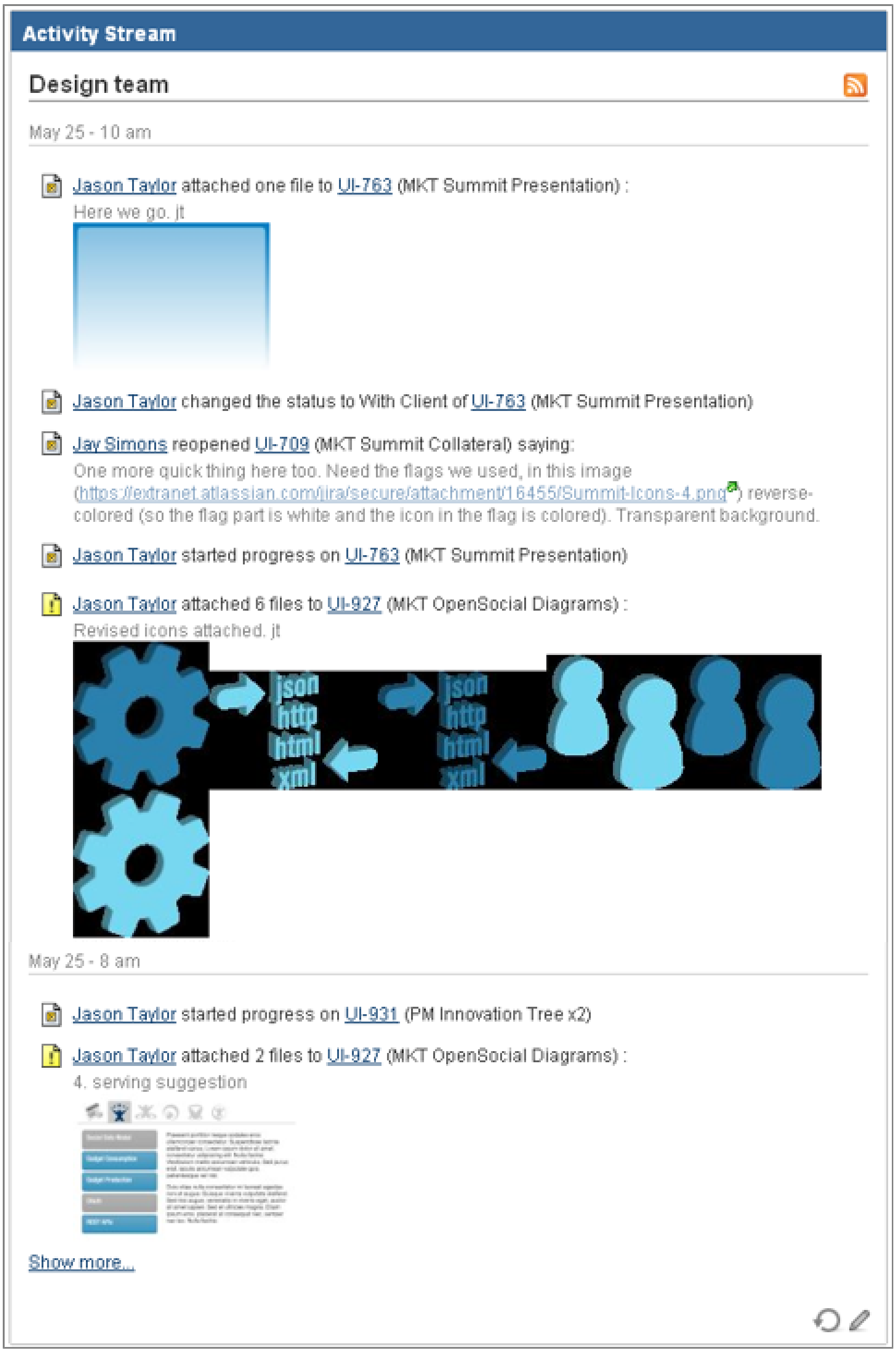
3

Activity Streams

The new activity stream allows you to stay up to date with exactly what is going on right this moment, what happened in that last hour or last few days.

Activity streams appear where you need them most — your user profile, project summary and view issue screens. You can even add an activity stream as a gadget on your dashboard.

The activity stream also provides an RSS feed, allowing you to subscribe to very specific RSS feeds of only the information that is most relevant to you.



See the documentation for more details.

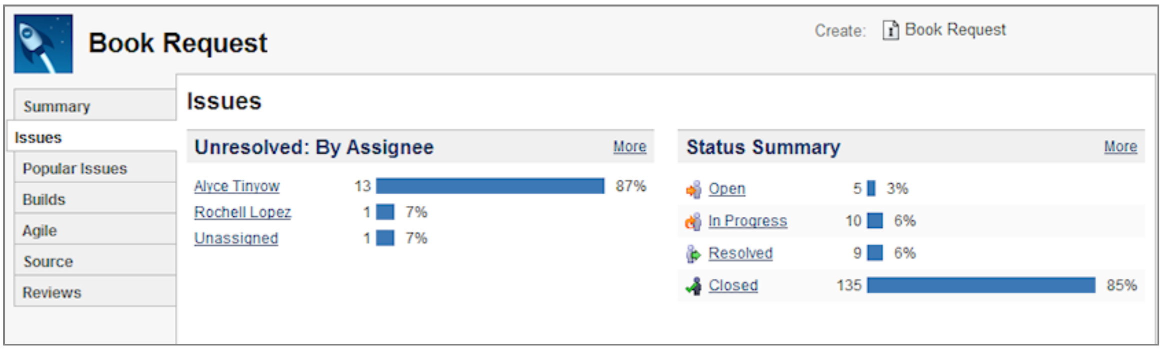
^Top

New-look "Browse Project"

Understanding the status of your projects just got a lot easier with the new browse project UI.

Quickly see what work is complete as well as outstanding. You can then drill down to specific issues you want to see.

Your Bamboo builds, FishEye source information and Crucible code reviews are only a click away, as well.



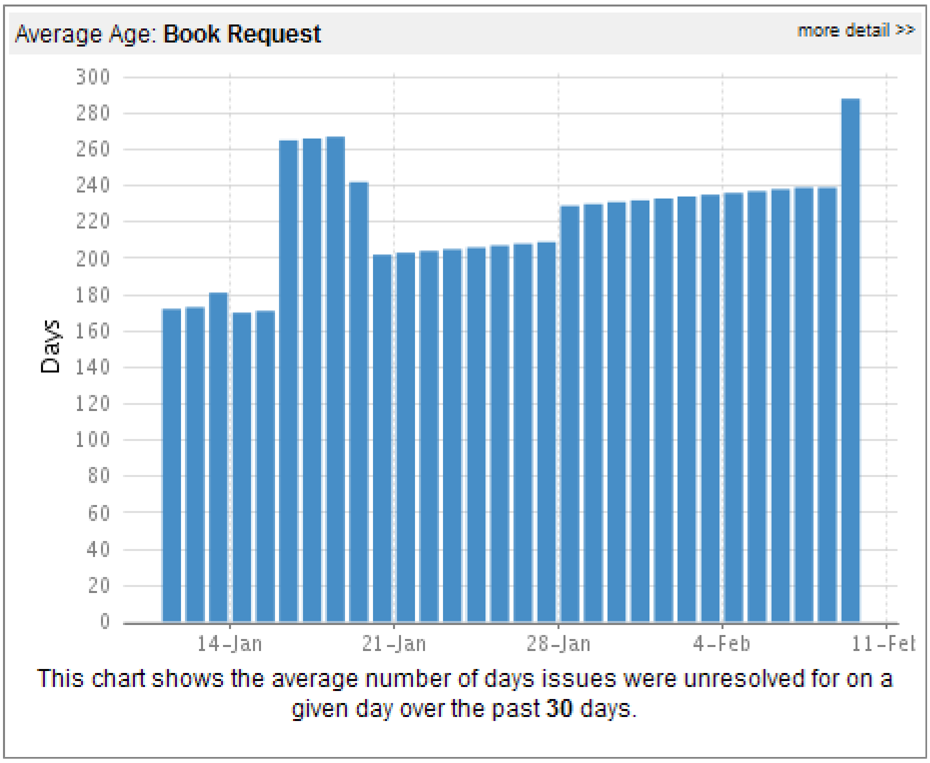
See the documentation for more about browsing projects, versions and components.
^Top

5

Charting Now Comes Standard

We've built charts into JIRA and given them a visual redesign as well.

- "Recently Created Issues" report and gadget — Shows the rate at which issues are being created.
- "Created vs Resolved Issues" report and gadget — Shows the number of issues created vs number of issues resolved over a given period of time.
- "Resolution Time" report and gadget — Shows the average time taken to resolve issues.
- "Pie Chart" report and gadget — Shows the search results from a specified issue filter (or project) in a pie-chart, based on a statistic of your choice.
- "Time Since Issues" report and gadget — Shows the number of issues for which your chosen date field (e.g. 'Created') was set on a given date.
- "Average Age" report and gadget — Shows the average age (in days) of unresolved issues, e.g.:



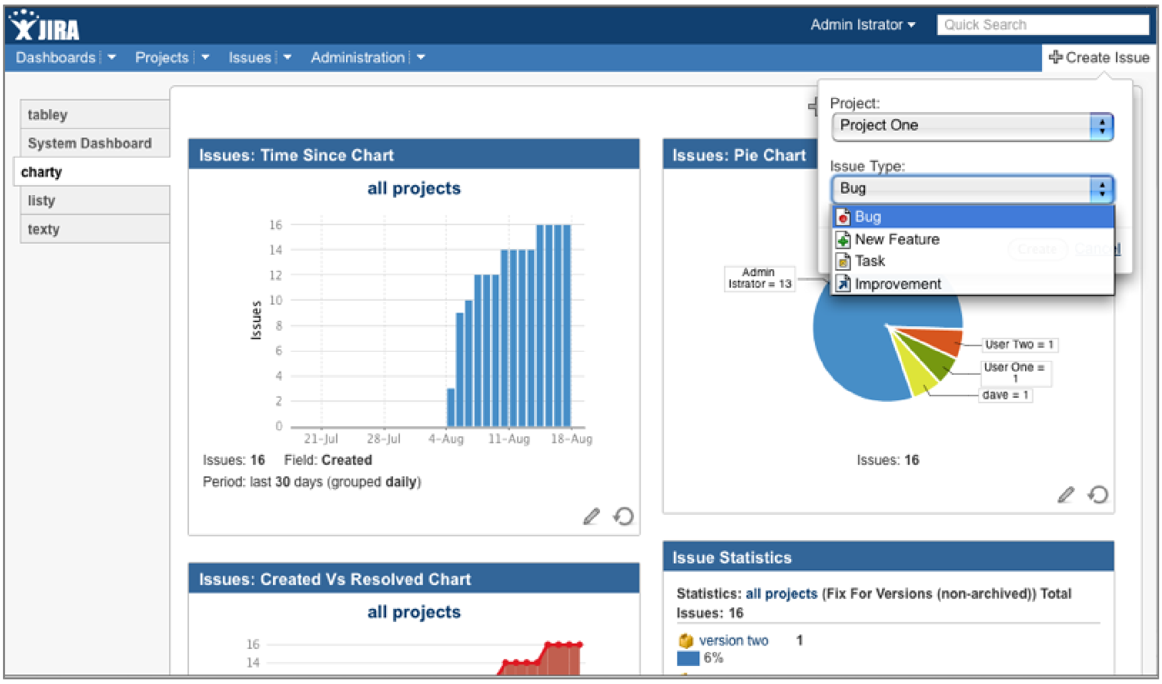
Also, the "Resolution Time" field from the Charting plugin is now part of JIRA, so every issue now automatically has its resolution time recorded.

^Top

6

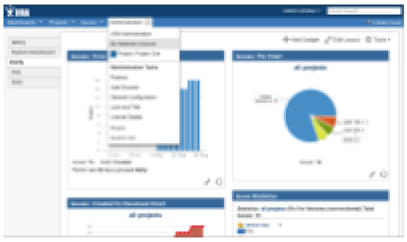
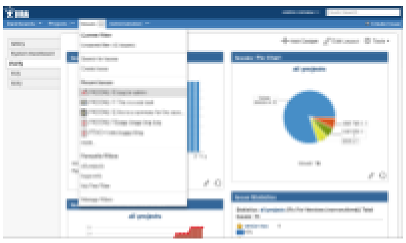
New-look Header

The new-look JIRA header gives you quick access to all of the most commonly-used functions. Creating an issue just got even faster!



Click to zoom in:

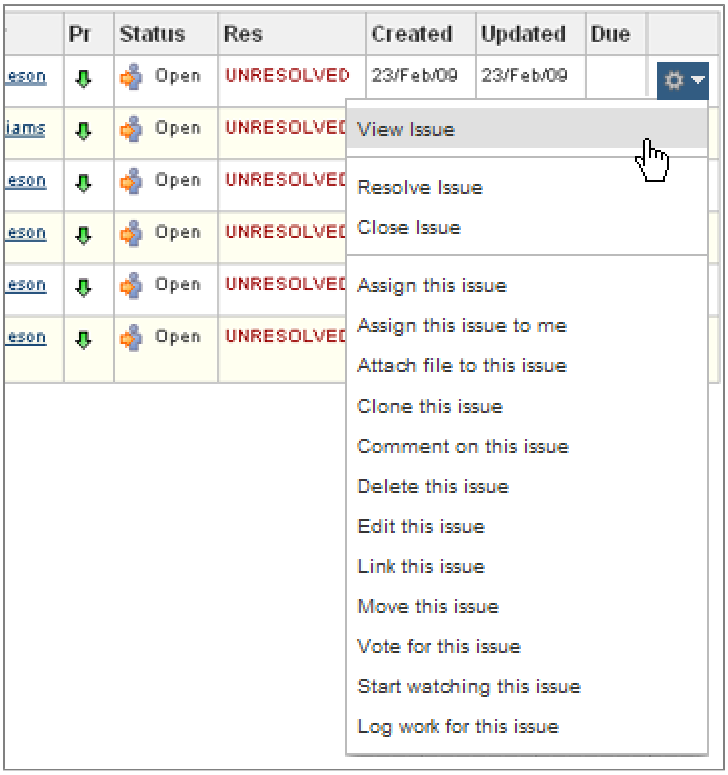


If you prefer keystrokes rather than mouse-clicks, you'll be pleased to know that you can use your keyboard to navigate the new header menus.
^Top

Issue Actions in the Issue Navigator

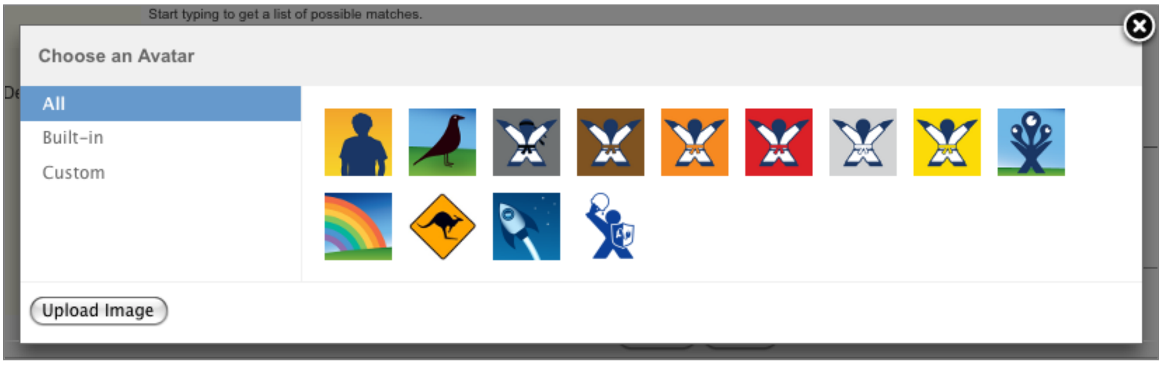
By popular request, issues are now actionable directly from the Issue Navigator:



The "Actions" menu is also available for the list of sub-tasks within an issue.
^Top

Project Icons

You can now give your project a visual identity, thanks to the introduction of project icons ('avatars'):



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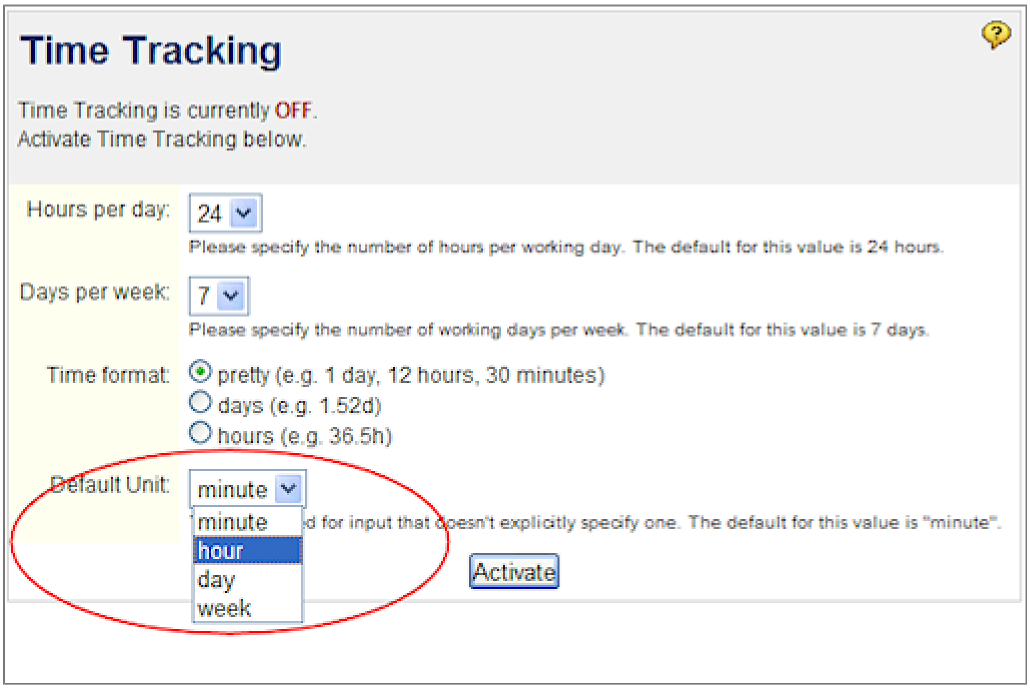
Default Unit for Time Tracking

You can now specify your preferred **Default Unit** (minutes/hours/days/weeks) for your JIRA system. This will be applied whenever users log work on an issue without specifying a unit.

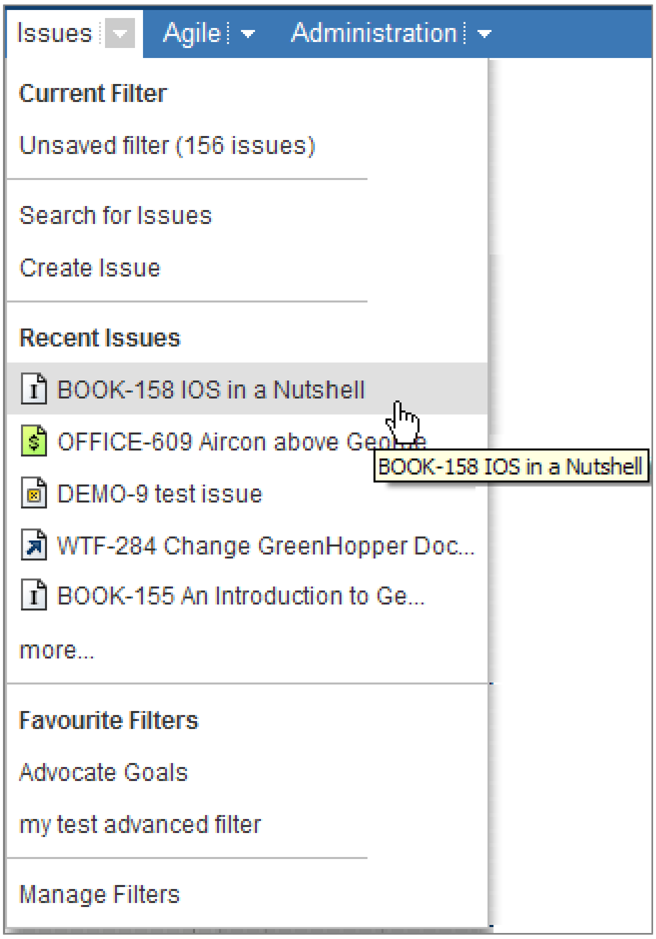


^Top

10

"History" is now permanent

Your list of recently-viewed issues is now stored in JIRA's database — so it's available after you log out and back in, even if you use a different machine.



^Top

11

Engine Room

Beyond the 'Back' Button

When navigating away from a page where you have modified data, you will be prompted to see if you would like to save the data or discard your changes (see JRA-14911).

Index Queue

Index updates are now put in a queue. So even if the update takes longer than 30 seconds, the operation remains on the queue and is not lost. (See JRA-14220.)

^Top

12

Plus over 900 other fixes and improvements

The top 50 most popular issues resolved in JIRA 4.0 are listed below. Click here for the full list.

JIRA Issues (50 issues)

Key	Type	Summary	Priority	Status
JRA-1560		Better support for logical operation (and/or/not) type of filters.		Resolved
JRA-7909		Search/ filter for "empty" fields		Resolved
JRA-1538		Filter on Versions and Components across Projects		Resolved
JRA-3464		allow filtering by project category		Resolved
JRA-3101		Jira - query / search / filter by issue links		Resolved
JRA-2925		Can't filter by Security Level		Resolved
JRA-1844		Display attachment comments associated with their attachments		Resolved
JRA-5383		My Votes and My Watches as filters		Resolved
JRA-5844		allow multiple users when creating filters		Resolved
JRA-6180		Search for a custom field that is empty		Resolved
JRA-5121		Filter Portlet with configurable columns		Resolved
JRA-2681		Extend filter capablities by adding negative clauses		Resolved
JRA-6527		Allow filters to be built upon other shared filters (combined filters)		Resolved
JRA-9551		Search for all Sub-Tasks of one given issue		Resolved
JRA-7772		Ability to create advanced queries to search across all data		Resolved

JRA-7626	Build search queries remotely	Resolved
JRA-1994	Ability to filter on time tracking related fields	Resolved
JRA-4059	Record last login time for a user	Resolved
JRA-5965	Allow configure units of time tracking	Resolved
JRA-7068	Allow for list of issues to be saved as a filter	Resolved
JRA-9823	Allow to optionally clone an issue's attachments when cloning an issue.	Resolved
JRA-10245	Ability to filter/view Issues upon "Versions" across multiple "Projects"	Resolved
JRA-5560	Improved query functionality	Resolved
JRA-1635	"not" qualifier on fields for searching	Resolved
JRA-6344	Send to both previous and current assignees for all notifications	Resolved
JRA-2607	Would like to create a filter also with OR conditions	Resolved
JRA-5201	Enable filter to specify more than 1 user	Resolved
JRA-10405	Attachment ordering	Resolved
JRA-10492	Search for several users as Assignee or Reporter	Resolved
JRA-5152	Show issue linked to another issue.	Resolved
JRA-3451	Enable filtering by Date Resolved	Resolved
JRA-16744	Improve the performance of checking if a user belongs to a particular group.	Resolved
JRA-8758	Cannot create filter for multiple projects all issues in version "Released Versions"	Resolved
JRA-10427	Changing field descriptions in "Field Configurations" for custom fields does not work	Resolved
JRA-8159	Add ability to issue navigator to find all issues linked to x issue - with option to constrain by link type	Resolved
JRA-8606	Need a way to find watched issues	Resolved
JRA-4605	new filter criteria: add NOT to all existing criteria	Resolved
JRA-14031	Form data lost when using back and forward web browser buttons	Resolved
JRA-9115	Ability to search for issues with no due date associated	Resolved
JRA-9048	Calendar week begins with sunday independently from locale	Resolved
JRA-14701	OSPropertyText table should have the value column set to extremely-long datatype	Resolved
JRA-14983	Fetch only updated or changed issues	Resolved

JRA-10658	More columns on Dashboards			Resolved
JRA-14613	Each project can have its own logo			Resolved
JRA-8973	RSS of Project Changes			Resolved
JRA-2852	search for issues on version lower or equal to a given version			Resolved
JRA-1800	Improve the UI for browse project			Resolved
JRA-923	Allow filter by "No Fix For" across projects			Resolved
JRA-15546	Versions no longer display descriptions when browsing project			Resolved
JRA-13801	Call method addWorklogAndAutoAdjustRemainingEstimate, the soap server reponse with this type IssueServiceImpl$RemoteWorklogImpl			Resolved

^Top

JIRA 4.0 Upgrade Guide

On this page:

- Upgrading from JIRA 3.13.x to 4.0
  - Licensing Changes
  - General Upgrade Instructions
  - Scheduling the Upgrade
  - Java Version
  - JIRA Home
  - Recommended Browsers
  - Users May Encounter 'Advanced Search'
  - 'mail.mime.decodeparameters' System Property
  - 'Resolution Date' System Field
  - Database Schema Changes
  - Charting Plugin
  - JIRA Toolkit
  - GreenHopper Plugin
  - Issue 'Status' Field Problem
  - Plugin Notes
  - Memory
- Upgrading from JIRA 3.12 and earlier
  - Upgrading from JIRA 2.x Data and earlier

Before You Upgrade
Please note the following points before starting your upgrade:

- **Problems running JIRA 4.0 with WebLogic** — We are currently aware of an issue that is preventing JIRA 4.0 from running on WebLogic. If you are currently using JIRA with WebLogic, we strongly recommend that you **do not upgrade JIRA** until a fix is available. You can track the progress of this issue here: JRA-19367
- **Problems running JIRA 4.0 with IBM JVM and JRocket JVM** — We recommend that you **use the Sun JVM** with JIRA 4.0. We are currently aware of issues preventing JIRA 4.0 from working with the IBM JVM and JRocket JVM. You can track the progress of these issues here:
  - IBM JVM issue (JRA-19379)
  - JRocket JVM issue (JRA-19384)
- **Problems using the JIRA Portlet Macro in Confluence 3.0.x with JIRA 4.0**, please read JIRA Portlet Macro page in the Confluence documentation for further information.
- If you are upgrading from **JIRA 3.12 or earlier**, please read the 'Upgrading from JIRA 3.12 and earlier' section below before starting your upgrade.

Tomcat, Apache and mod_proxy setup
Unlike previous versions of JIRA, the new JIRA 4 Dashboard frequently makes HTTP requests *to itself*. For this reason, the hostname, port and protocol (http/https) must be correct throughout all portions of the request chain. Additionally, if you are using SSL, JIRA's JVM must be able to trust the SSL certificate on a JIRA response. If your setup is not configured correctly, the Dashboard in JIRA will not work. Please read this knowledge base article if you are having problems.

Upgrading from JIRA 3.13.x to 4.0

Licensing Changes

JIRA 4.0 introduces some **significant licensing changes**. Before you begin the upgrade, please go to my.atlassian.com for your upgraded license. Please note, any existing 3.x license files **will not work** with 4.0.

> JIRA has moved to a **user-based licensing model** in JIRA 4.0. This means that you will need to calculate the number of users in your JIRA system to determine what license you will need, before you can complete your upgrade. For more information on this, please see the JIRA pricing changes FAQ.

Once you have upgraded your license, please follow the instructions below:

General Upgrade Instructions

Please ensure that you follow the instructions in the general JIRA upgrade guide (non-version specific), as well as the JIRA 4.0 specific instructions in the sections below. The general upgrade guide contains important tasks that are essential for getting your upgraded JIRA instance to work correctly (e.g. merging `jira-application.properties` customisations from the old instance to the upgraded instance).

Scheduling the Upgrade

Please note that upgrading to JIRA 4.0 may take a long time, depending on the size of your instance as well as server and database performance. During the upgrade, several upgrade tasks will need to run to upgrade your data to be ready for JIRA 4.0, such as:

- Calculating a resolution date for all resolved issues in your system
- Re-indexing your issues
- Converting saved filters to use JQL
- Converting existing portlets to gadgets

Please schedule sufficient downtime time for the upgrade in your production environment. It is recommended to run an upgrade first in a test environment to see how long the upgrade will take for your data set and hardware configuration.

Java Version

If you are running JIRA under version 6 (1.6) of the Sun JRE, please ensure that you are running a point release JRE 6 (1.6) Update 10 or higher. The reasons for this are:

- JIRA 4.0 introduces a new REST plugin type based on Jersey, which will not work with JRE 6 - JRE 6 Update 3. If you are running JIRA with one of these versions of the JRE you will see the following errors:

  ```
  java.lang.LinkageError: JAXB 2.0 API is being loaded from the bootstrap classloader,
  but this RI (from bundle://16.0:3/com/sun/xml/bind/v2/model/impl/ModelBuilder.class)
  needs 2.1 API. Use the endorsed directory mechanism to place jaxb-api.jar in the bootstrap
  classloader. (See http://java.sun.com/j2se/1.5.0/docs/guide/standards/)
  ```

  Note: JRE 5 (1.5) doesn't have this problem since it doesn't bundle JAXB.

- JIRA 4.0 uses Lucene v2.3, which is affected by a Sun hotspot compiler bug in JRE 6 (1.6) Update 4 and upwards (see JRA-15681). The bug is fixed in JRE 6 (1.6) Update10.

JIRA Home

JIRA 4.0 has a new directory structure — for details, please see Important Directories and Files.

Please ensure that you set the `jira.home` property as described here.

Recommended Browsers

The following browsers are recommended for use with JIRA 4:

- Internet Explorer 7 and 8
- Firefox 3.x
- Safari 4

Tip: If you are looking for our recommended databases and applications servers, you can find them here:

- Supported Platforms

Users May Encounter 'Advanced Search'

If any of your users have saved invalid filters, the new 'Advanced Search' screen may appear when they try to display them.

'mail.mime.decodeparameters' System Property

The following system property must be set in order for the JIRA mail handler to work correctly with emails from RFC 2231-compliant mail clients:

Refer to Setting Properties and Options on Startup for instructions.

'Resolution Date' System Field

JIRA 4.0 introduces a new system field, the Resolution Date. This field provides the date when an issue last entered into a 'Resolved' workflow state. When upgrading to JIRA 4.0, an upgrade task will run, calculating the Resolution Date for every resolved issue in your system. If you have a large number of issues, this may take a long time. The speed at which this upgrade task runs can be improved by ensuring that your database statistics are up to date for your changegroup and changeitem tables (to ensure the database will select the most effective query plan).

For example, on Postgres this can be done by executing the following commands:

```
jiratest=# ANALYZE changegroup;
ANALYZE
jiratest=# ANALYZE changeitem;
ANALYZE
```

JIRA's RPC interface now provides two new methods to retrieve an issue's Resolution Date:

- getResolutionDateById(String token, Long issueId) – retrieves the Resolution Date given an issue id
- getResolutionDateByKey(String token, String issueKey) – retrieves the Resolution Date given an issue key

The RemoteIssue class was left unchanged, to ensure backwards compatibility of RPC clients.

Database Schema Changes

If you are using an Oracle or MySQL database, please note that two column data types have been changed.

Therefore, the easiest way to upgrade to JIRA 4.0 is to perform an XML backup and restore as described in the Upgrading JIRA instructions.

If in the past, instead of performing an XML backup and restore, you have been upgrading by "pointing" the new version of JIRA at an old database, this is still possible. However, the procedure is more complicated. You will need to use SQL scripts to perform database schema changes.

For details (and the scripts), please see JIRA 4.0 Database Schema Changes for MySQL and Oracle .

Charting Plugin

JIRA 4.0 now bundles most of the charts previously provided by the JIRA charting plugin. If you currently have the JIRA charting plugin installed (v1.4.1 or previous) in `WEB-INF/lib`, please remove it as otherwise JIRA will fail to start.

The following charts have not been bundled with JIRA 4.0. If you are using any of the following charts, you will need to upgrade to version 1.5 of the JIRA charting plugin:

- Time to First Response Chart
- Average Number of Times in Status Chart
- Average Time in Status Chart
- Workload Pie Chart Report

JIRA Toolkit

If you are using the JIRA Toolkit, you will need to upgrade it to the latest version.

You will also need to install it in your JIRA home directory, rather than your `atlassian-jira/WEB-INF/lib/` directory as it now runs in an OSGi container. Read Managing JIRA's Plugins for more information.

GreenHopper Plugin

GreenHopper for JIRA 4.0 is now available for use with JIRA 4.0. You can download it on the GreenHopper Plugin for JIRA Downloads page. Please follow the GreenHopper Installation and Upgrade Guide for instructions on how to upgrade GreenHopper.

Please note, you need to **upgrade your GreenHopper license** before you can use GreenHopper with JIRA 4.0. Any existing GreenHopper license files **will not work** with JIRA 4.0. You can obtain a license from http://my.atlassian.com.

Issue 'Status' Field Problem

Prior to JIRA 4.0, it was possible to create two statuses whose names differed only in case (e.g. 'Resolved' and 'RESOLVED'). If you upgrade to JIRA 4.0, this will lead to ambiguities. Consider this scenario:

1. You have defined two issue statuses in a project with names that differ only in case, ('In Progress (Services)' and 'IN PROGRESS (SERVICES)'), to use in different workflows.

2. At a point in time, 100 issues are assigned the first status of 'In Progress (Services)' and 50 issues are assigned the second status of 'IN PROGRESS (SERVICES)'.
3. You browse the project's issues. The 'Status Summary' will incorrectly show only one 'In Progress (Services)' status with either 100 or 50 issues (picked randomly). The issue totals in the other summaries (By Priority, etc) will also be incorrect, due to JIRA not recognising the statuses as distinct.

Additionally, you will receive ambiguous results if you attempt to perform a search by name on the status in the Advanced Search (e.g. "Status = In Progress (Services)").

To resolve this issue, we recommend that you **ensure that each issue status is distinct** by renaming the duplicate statuses appropriately. You may also need to update any issue filters that you have set up.

Plugin Notes

JIRA 4.0 introduces several changes that may break existing plugins.

There are now two different types of plugins. Each type of plugin needs to be installed into a different directory to work. Read Managing JIRA's Plugins for more information.

If you are using a plugin that is not shipped with JIRA, the plugin may need to be updated to work with JIRA 4.0. If the plugin was written by you, please read through Updating JIRA Plugins for JIRA 4.0 and see if any of it is relevant to your plugin. If you are using a plugin written by a third party, please check with the plugin's author to see if the plugin has been tested with JIRA 4.0.

Memory

Running JIRA v4.0 may require more RAM than running v3.x.
The default settings (suitable for small to medium usage) for standalone allocates a total of 512MB memory to the JIRA application.
Please ensure your server has enough available RAM to cover this.
If you are installing JIRA as a WAR/EAR, then you may need to increase the amount of "PermGen" memory allocated to JIRA. 256MB PermGen is recommended.

Upgrading from JIRA 3.12 and earlier

In addition to the points listed above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Please also note the following:

Upgrading from JIRA 2.x Data and earlier

If you are upgrading from JIRA 2.x data (or earlier) to JIRA 4.0, you **must upgrade to any JIRA 3.x release first** (3.13.5 recommended). You can then follow the JIRA 4.0 Upgrade Guide to upgrade your JIRA instance to 4.0.

JIRA 4.0 Database Schema Changes for MySQL and Oracle

If you are using the MySQL or Oracle database, two column data types have been changed as described in the JIRA 4.0 Database Schema Changes section below.

- Recommended method of upgrade
- Alternative method of upgrade
  - MySQL notes for alternative method of upgrade
  - Oracle notes for alternative method of upgrade
- JIRA 4.0 Database Schema Changes
  - Column data types

Recommended method of upgrade

The easiest way to upgrade to JIRA 4.0 is to perform an **XML backup and restore** as described in the Upgrading JIRA instructions.

Alternative method of upgrade

If in the past, instead of performing an XML backup and restore, you have been upgrading by "pointing" the new version of JIRA at an old database, this is still possible. However, the procedure is more complicated. You will need to use SQL scripts to perform database schema changes.

MySQL notes for alternative method of upgrade

1. **Shutdown your JIRA instance.**
2. **Perform a backup of your MySQL database as follows:**

   ```
   mysqldump --opt db_name > db_name.sql
   ```

   e.g.: `mysqldump --opt jiradb > jiradb_before4.sql`

3. Download the attached mysql_4_0.sql script.

4. Execute the following script:

```
mysql --user=username --password=password db_name < mysql_4_0.sql
```

e.g.: `mysql --user=root --password=password jiradb < mysql_4_0.sql`

5. If you see any errors, please contact Support for further assistance.
6. Point your new installation of JIRA 4.0 at your MySQL database and watch for any errors in the log during the startup sequence.

Note: The following warnings regarding database changes can be ignored. They will only appear the first time you start JIRA after upgrading your JIRA database to 4.0.

```
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "ExternalGadget" has no table in the database
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "GadgetUserPreference" has no table in the
database
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "Issue" has 24 fields but table "jiraissue"
has 23 columns.
main WARN     [core.entity.jdbc.DatabaseUtil] Field "resolutiondate" of entity "Issue" is missing
its corresponding column "RESOLUTIONDATE"
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "PortletConfiguration" has 7 fields but table
"portletconfiguration" has 6 columns.
main WARN     [core.entity.jdbc.DatabaseUtil] Field "gadgetXml" of entity "PortletConfiguration"
is missing its corresponding column "GADGET_XML"
```

Oracle notes for alternative method of upgrade

1. **Shutdown your JIRA instance.**
2. **Perform a backup of your Oracle database. There are multiple strategies here, so we will leave this up to your DBA.**
3. Download the attached oracle_4_0.sql script.
4. Connect to SQL*Plus and execute the following script:

```
SQL*Plus: Release 10.2.0.1.0 - Production on Thu Oct 19 12:56:11 2006
Copyright (c) 1982, 2005, Oracle.  All rights reserved.

Connected to:
Oracle Database 10g Enterprise Edition Release 10.2.0.1.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> @/home/oracle/oracle_4_0.sql
```

5. If you see any errors, please contact Support for further assistance.
6. Point your new installation of JIRA 4.0 at your Oracle database and watch for any errors in the log during the startup sequence.

Note: The following warnings regarding database changes can be ignored. They will only appear the first time you start JIRA after upgrading your JIRA database to 4.0.

```
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "ExternalGadget" has no table in the database
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "GadgetUserPreference" has no table in the
database
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "Issue" has 24 fields but table "jiraissue"
has 23 columns.
main WARN     [core.entity.jdbc.DatabaseUtil] Field "resolutiondate" of entity "Issue" is missing
its corresponding column "RESOLUTIONDATE"
main WARN     [core.entity.jdbc.DatabaseUtil] Entity "PortletConfiguration" has 7 fields but table
"portletconfiguration" has 6 columns.
main WARN     [core.entity.jdbc.DatabaseUtil] Field "gadgetXml" of entity "PortletConfiguration"
is missing its corresponding column "GADGET_XML"
```

JIRA 4.0 Database Schema Changes

The table below summarises the changes to the database schema. Please note that if you have developed any custom utilities which query or modify the JIRA database directly (i.e. without using the JIRA API), you need to check whether the utilities need to be updated.

Column data types

The following database column data types have been changed. Their column name, old and new data types, as well as the database table they belong to, are shown below:

For MySQL:

TABLE NAME	COLUMN NAME	OLD DATA TYPE	NEW DATA TYPE
propertytext	propertyvalue	TEXT	LONGTEXT
searchrequest	reqcontent	TEXT	LONGTEXT

For Oracle:

TABLE NAME	COLUMN NAME	OLD DATA TYPE	NEW DATA TYPE
propertytext	propertyvalue	VARCHAR2	CLOB
searchrequest	reqcontent	VARCHAR2	CLOB

Updating JIRA Plugins for JIRA 4.0

Plugin Developer Notes

JIRA 4.0 introduces several changes that may break existing plugins. If you are using a plugin that is not shipped with JIRA, the plugin may need to be updated to work with JIRA 4.0. If the plugin was written by you, please read through the information below and see if any of it is relevant to your plugin. If you are using a plugin written by a third party, please check with the plugin's author to see if the plugin has been tested with JIRA 4.0.

- RPC plugin
- Responses from Servlet Plugin Modules are no longer decorated
- Combined JavaScript servlet has been removed
- Project/Component/Version Tab Panel Plugins
- Issue View Plugins
- Issue Tab Panel Plugins
- Search Request View Plugins
- PortalManager and PortalPageConfiguration removed
- New Searching
- Examples
- Plugging into JQL and what happened to my Custom Field Searchers
    - What is a JQL Clause?
    - Integrating with JQL
    - Integrating into the Issue Navigator
    - JIRA 3.x to 4.0 Filter Upgrade
- Converting Portlets to Gadgets

RPC plugin

A number of methods in the RPC plugin were refactored to use services provided by JIRA's core services layer. As a result they may now perform stricter validation on input data, in line with behaviour exhibited by JIRA's UI. A side effect of these changes is that method calls will now throw `RemoteValidationException` instead of `RemotePermissionException` for certain method calls. This change won't break client stubs, since all methods throw `RemoteException` which is the superclass for `RemoteValidationException` and `RemotePermissionException`. However, if client code depends on `RemotePermissionException`, it will need to be updated to expect a `RemoteException` or `RemoteValidationException`.

If you have developed custom code that uses JIRA's SOAP interface, the client code may need to be updated.

Responses from Servlet Plugin Modules are no longer decorated

The response generated by Servlet Plugin Modules served under `/plugins/servlet` will no longer be decorated by SiteMesh. This means that if you are using servlets to display contents directly in the browser, they may be missing the JIRA header and footer. If the response from your servlet needs to be decorated, you have two possible solutions:

1. The best is to convert the servlet to a Webwork Plugin Modules as this is better suited for processing requests that generate HTML responses.
2. Alternatively, add

```
<meta content="decorator_name" name="decorator" />
```

   in the <head> element of your HTML response, where `decorator_name` is the name of the SiteMesh decorator that should be applied.

Combined JavaScript servlet has been removed

In JIRA 4.0 we cleaned up a lot of the JavaScript resources that are included on every page. As a result, the `combined-javascript` servlet was removed, in favour of Web Resources. This means that if your plugin defines javascript resources of the form:

```
<resource type="javascript">/path/to/my/resource.js</resource>
```

they will no longer be included. They should be replaced by Web Resources.

Project/Component/Version Tab Panel Plugins

The API for this plugin has changed. We removed the action being passed in (what were we thinking) and made it a cleaner, more consistent interface. If you have any custom Tab Panel Plugins plugins, you will need to update them to use the new interface:

```
/**
 * Unified interface for all fragment-based tab panels.
 *
 * @since v4.0
 */
public interface TabPanel<D extends AbstractTabPanelModuleDescriptor, C extends BrowseContext>
{
    /**
     * Initialize the tab panel panel with the plugins ProjectTabPanelModuleDescriptor.  This is
usually used for
     * rendering velocity views.
     *
     * @param descriptor the descriptor for this module as defined in the plugin xml descriptor.
     */
    void init(D descriptor);

    /**
     * Used to render the tab.
     *
     * @param ctx The current context the tab is rendering in.
     * @return Escaped string with the required html.
     */
    String getHtml(C ctx);

    /**
     * Determine whether or not to show this.
     *
     * @param ctx The current context the tab is rendering in.
     * @return True if the conditions are right to display tab, otherwise false.
     */
    boolean showPanel(C ctx);
}
```

The specific plugin endpoints extend this in the following manner:

```
/**
 * A Tab panel to be displayed on the Browse Project page.
 */
public interface ProjectTabPanel extends TabPanel<ProjectTabPanelModuleDescriptor, BrowseContext>

/**
 * A Tab panel to be displayed on the Browse Component page.
 */
public interface ComponentTabPanel extends TabPanel<ComponentTabPanelModuleDescriptor,
BrowseComponentContext>

/**
 * A Tab panel to be displayed on the Browse Version page.
 */
public interface VersionTabPanel extends TabPanel<VersionTabPanelModuleDescriptor,
BrowseVersionContext>
```

If you are using `WebResourceManager.requireResource("...")`, your javascript will not be loaded when your tab is loaded via AJAX. You can include it via `WebResourceManager.getStaticPluginResource()` in your actual content. Note: this will be fixed in the next beta.

Issue View Plugins

The `com.atlassian.jira.plugin.issueview.IssueView` interface has changed such that the following methods:

```
public String getContent(Issue issue, IssueViewRequestParams issueViewRequestParams);

public void writeHeaders(Issue issue, RequestHeaders requestHeaders, IssueViewRequestParams
issueViewRequestParams);
```

now take in the `IssueViewRequestParams` parameter. This allows the plugin to access the parameters that were submitted with the request.

If you have written an Issue View plugin, you will need to update it such that in conforms to the new interface.

Issue Tab Panel Plugins

In JIRA 4.0, a new 'sortable' property was introduced to distinguish if the contents of an issue tab panel are sortable. If they are not, the sortable link in the top right corner will not be shown. By default issue tab panels are now **not** sortable. To make a tab panel sortable, plugin developers will have to add the following attribute:

```
<issue-tabpanel key="all-tabpanel" i18n-name-key="admin.issue.tabpanels.plugin.all.name" name="All
Tab Panel" class="com.atlassian.jira.issue.tabpanels.AllTabPanel">
        <description key="admin.issue.tabpanels.plugin.all.desc">Display all tab panels as
one</description>
        <label key="viewissue.tabs.all">All</label>
        <order>0</order>
        <sortable>true</sortable>
    </issue-tabpanel>
```

Search Request View Plugins

In JIRA 4.0, the `com.atlassian.jira.plugin.searchrequestview.SearchRequestView` has the following new method:

```
/**
 * Prints the HTML headers for non-typical HTML such as Word or Excel views. (e.g.:
requestHeaders.addHeader("content-disposition", "attachment;filename="sample.doc";");)
 *
 * @param searchRequest the original search request submitted by the user
 * @param requestHeaders subset of HttpServletResponse responsible for setting headers only
 * @param searchRequestParams context about the current search request
 */
public void writeHeaders(SearchRequest searchRequest, RequestHeaders requestHeaders,
SearchRequestParams searchRequestParams);
```

If you have written a Search Request View Plugin, and the plugin implements the interface without extending `com.atlassian.jira.plugin.searchrequestview.AbstractSearchRequestView`, you will need to update the plugin and implement the new method. The easiest thing to do is to proxy the call straight to the existing method:

```
/**
 * Prints the HTML headers for non-typical HTML such as Word or Excel views. (e.g.:
requestHeaders.addHeader("content-disposition", "attachment;filename="sample.doc";");)
 *
 * @deprecated since v3.13.3 please use {@link
#writeHeaders(com.atlassian.jira.issue.search.SearchRequest, RequestHeaders, SearchRequestParams)}
 * @param searchRequest the original search request submitted by the user
 * @param requestHeaders subset of HttpServletResponse responsible for setting headers only
 */
public void writeHeaders(SearchRequest searchRequest, RequestHeaders requestHeaders);
```

Note that the `SearchRequestParams` object used by Search Request View Plugins now extends `IssueViewRequestParams` and therefore allows the plugin to access request parameters.
PortalManager and PortalPageConfiguration removed

The deprecated components `PortalManager` and `PortalPageConfiguration` have been removed. Developers should now be using the `JiraDashboardStateStoreManager` to obtain similar functionality.

The `PortalPageConfiguration` had methods that made changes directly to the database (e.g. `store`, `addPortletConfig`, `deletePortletConfig`, `deletePortletConfigs`, `reload`). The `PortalPage` does not have such methods. All persistent changes must now be made through the `JiraDashboardStateStoreManager` passing the required `DashboardState` as an argument.

The `PortalPageManager & PortalPageService` may also be used to manipulate a `PortalPage` within JIRA. These classes should no longer be used however since they will be re-written or removed for JIRA 4.1.

New Searching

The way a search is performed in JIRA has significantly changed. The introduction of advanced searching (JQL) necessitated a rewrite of the JIRA searching subsystem. In the process, the API for searching has also been changed (and improved) significantly. Unfortunately these changes will almost certainly mean that plugins that search will need to be updated for JIRA 4.0.

In JIRA 3.x and earlier, searching was achieved using a `SearchRequest` in combination with `SearchParameters` and `SearchSorts`. While the `SearchRequest` still continues to exist in JIRA 4.0, the `SearchParameters` have been replaced with the `Query` object.

The `Query` is JIRA's internal representation of a JQL search. It contains the search condition (i.e. the "where" clause) and the search order (i.e. the "order by" clause). The `Query` object can be created using the `JqlQueryBuilder`. For example, to create a query "find all issues assigned to either Dylan or Tokes that are unresolved and due in the next week" you would call:

Once the `Query` has been obtained, it can be used to execute a search. In JIRA 4.0 a new `SearchService` has been added to provide a central location for `Query` related operations. To run the search you can simply call `SearchService.search()` as documented on the `SearchService`. The `SearchProvider` is still available for those who need to control the finer details of searching.

The `Query` object is immutable; once it is created it cannot be changed. The `JqlQueryBuilder` represents the mutable version of a `Query` object. The `JqlQueryBuilder` can be primed with an already existing `Query` by calling `JqlQueryBuilder.newBuilder(existingQuery)`.

In JIRA 3.x the `SearchRequest` was the object that was passed to the searching system to perform a search. The `Query` object has taken over this role in JIRA 4.0; the `SearchProvider` and `SearchService` now take in `Query` objects rather than `SearchRequests`. The `SearchRequest` object has been reworked in JIRA 4.0 to significantly reduce its responsibility. For instance, ordering information is now stored on the `Query` object rather than on the `SearchRequest` object. The `SearchRequest` really represents a saved search (aka. filter). You should only need to deal with `SearchRequests` if you are working with filters. Even in this case, all searching operations need to be performed on `Query` objects by calling `SearchRequest.getQuery()`.

It is often necessary to get a URL for a particular `Query`. The `SearchService` provides the `getQueryString(query)` method for this. The method returns a parameter snippet of the form `jqlQuery=<jqlUrlEncodedQuery>`, which can be appended safely to an existing URL that points at the Issue Navigator. Note that the links that JIRA 4.0 generates are JQL based, so are incompatible with JIRA 3.x and before. Old valid JIRA 3.x URLs will still work with JIRA 4.0.

Given a `Query` object it is possible to retrieve its JQL representation by calling either `getGeneratedJqlString(query)` or `getJqlString(query)` on the SearchService. The service makes sure that any values in the `Query` that need to be escaped are handled correctly. Importantly, the `Query.toString()` method does not return valid JQL (on purpose).

The `SearchService.parseQuery(jqlString)` method can be used to turn a JQL string into its `Query` representation. The return from this method has details on any parse errors encountered.

A `Query` object, especially those parsed directly from the user, may not be valid. For example, the user may be trying to find issues in a status that does not exist. The `SearchService.validateQuery(query)` method can be used to see if a particular `Query` object is valid. Errors are returned with messages that can be displayed to the user. Executing an invalid `Query` will not result in any errors and in fact may return results. To run an invalid query, JIRA will just make the invalid conditions equate to false and run the query. For example, searching for `status = "I don't Exist" or user = bbain` will result in the query `<false> or user = bbain` actually being run.

There are some methods on the `SearchService` that we did not discuss here. Check out documentation on the `SearchService` for more information.

Examples

Here's a complete example how to obtain search results for the query "project is JRA and the reporter is the currently logged in user and custom field with id 10490 contains 'xss'":

The preceding search could have also been written using the QueryBuilder:

Plugging into JQL and what happened to my Custom Field Searchers

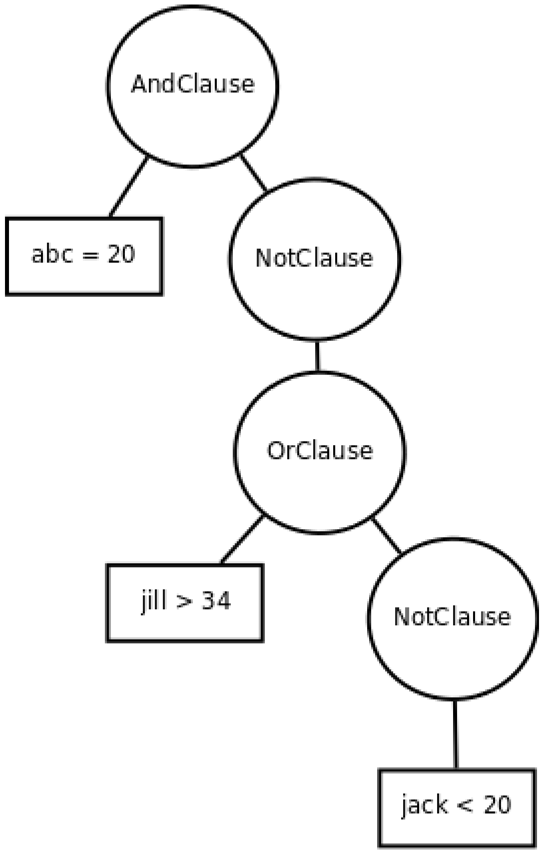
The introduction of advanced searching (JQL) necessitated a rewrite of the JIRA searching subsystem. Unfortunately these changes will certainly mean that any `CustomFieldSearchers` will need to be updated to work in 4.0.

The most fundamental change is that all JIRA 4.0 searching is implemented using JQL. A JQL search consists of two components: firstly, a number of conditions, or `Clauses`, that must be matched for an issue to be returned; and secondly, a collection of search orderings that define the order in which the issues should be returned. The `Query` object is JIRA's internal representation of a search. It is now the responsibility of the `CustomFieldSearcher` to take a relevant `Query`, validate its correctness and generate a Lucene query to find issues that match it. By doing this your custom field becomes searchable using JQL.

The `CustomFieldSearcher` and/or the custom field is also responsible for ordering results if the order in the search includes the custom field. If your custom field ordered correctly in JIRA 3.x, then it will order correctly in JIRA 4.0. While the internal representation of an order has changed in JIRA 4.0, it still uses the same interfaces to order the search results. We will not address ordering again.

What is a JQL Clause?

A custom field must process the `Clauses` from a JQL search to integrate into JQL. Each `Clause` consists of a number of conditions (e.g. `abc != 20`) combined by the AND and OR logical operators (e.g. `abc = 20 AND (jack < 20 OR jill > 34`). In JIRA a condition is represented by a `TerminalClause`, the logical AND by an `AndClause` and a logical OR by an `OrClause`, all of which implement the `Clause` interface. Finally, the logical NOT operator can be used to negate any other `Clause`. It is represented by a `NotClause` that also implements Clause. These `Clause` objects are composed together to represent a complex conditions. For example, the condition `abc = 20 AND NOT(jill > 34 OR NOT jack < 20)` is represented by the following tree:



A `Clause` can be navigated by passing an instance of a `ClauseVisitor` to the `accept` method of a Clause. This follows the traditional visitor pattern.

The `TerminalClause` represents a `Clause` of the form "field operator value". Inside the `TermincalClause` the "operator" is one of the values from `Operator` enumeration while the "value" is represented as an `Operand`. An `Operand` can represent a single value (e.g. `field = "single"`), a list of values (e.g. `field in ("one", 1235)`), a function (e.g. `field = function(arg1, arg2)`) or EMPTY (e.g. `field is EMPTY`). In the end, all you want is the values from the `Operand`. These can be obtained as a list of `QueryLiteral` (see below) by calling `JqlOperandResolver.getValues()`. The `JqlOperandResolver` also has the `isEmptyOperand`, `isFunctionOperand`, `isListOperand` and `isValidOperand` methods that can be used to determine the type of the `Operand`.

A `QueryLiteral` represents either a `String`, `Long` or EMPTY value. These three represent JQL's distinguishable types. It is up to the `CustomFieldSearcher` to convert these values into something that makes sense to it. The type of a `QueryLiteral` can be determined by calling its `isEmpty`, `getLongValue` or `getStringValue` methods. The get methods will return `null` or `false` when the method and the `QueryLiteral` type do not match.

Integrating with JQL

In JIRA 3.x a `CustomFieldSearcher` was the way to provide customised searching functionality for custom fields. In JIRA 4.0 it is still the plugin point for searching; however, the `CustomFieldSearcher` interface has changed significantly to accommodate the introduction of JQL. One of the major changes is that the `CustomFieldSearcher` must return a `CustomFieldSearcherClauseHandler` in JIRA 4.0. This object is a composition of a `ClauseValidator` and a `ClauseQueryFactory`.

The `ClauseValidator` is used by JIRA to ensure that a JQL query is valid according to the `CustomFieldSearcher`.

It is up to the validator to ensure that the operator and the value from the passed `TerminalClause` makes sense for the `CustomFieldSearcher` and its associated custom field. Any errors can be placed in the returned `MessageSet`. They should be internationalised with respect to the passed user.

The `validate` method must always return a `MessageSet` as its result. A `null` return is not allowed. A `MessageSet` is an object that contains all of the errors and warnings that occur during validation. All messages in the `MessageSet` need to be translated with respect to the passed searching user. An empty `MessageSet` indicates that no errors have occurred. A `MessageSet` with errors indicates that the JQL is invalid and should not be allowed to run. The returned messages will be displayed to the user so that any problems may be rectified. A `MessageSet` with warnings indicates that the JQL may have problems but that it can still be run. Any warning messages will be displayed above the results.

The `ClauseValidator` does **not** need to check if the passed `TerminalClause` is meant for the for it, JIRA makes sure that it only passes `TerminalClauses` that the `ClauseValidator` is meant to process. It does that by only passing `TerminalClauses` whose "field" matches one of the names the custom field must handle.

`ClauseValidators` need to respect JIRA security. A `ClauseValidator` should not leak information about JIRA objects that the searcher does not have permission to use. For example, a `ClauseValidator` should not differentiate between an object not existing and an object that the user has no permission to see. A ClauseValidator that behaves badly will not cause JQL to expose issues that the searcher is not allowed to see (since JQL does permission checks when it runs the filter), though it does open up an attack vector for information disclosure.

The ClauseValidator must be thread-safe and re-entrant to ensure correct behavior. JIRA will only create one instance of the ClauseValidator per custom field instance. This means that multiple threads may be calling the validator at the same time.

The ClauseQueryFactory is used by JIRA to generate the Lucene search for a JQL Clause.

It is the responsibility of the ClauseQueryFactory to create the Lucene search for the passed TerminalClause and QueryCreationContext. The generated Lucene search is returned in the QueryFactoryResult. The result contains the search (a Lucene Query object which is not related the the JQL Query object) and a flag to indicate whether or not the Lucene search should be negated. When set to true, JIRA will actually only match issues that do not match the returned Lucene search. For example, a ClauseQueryFactory may decide to implement a condition like `field != value` by returning a Lucene search that matches `field = value` and setting the flag to true. You can also implement this condition by returning a Lucene search that matches `field != value` and setting the flag to false.

The new argument here is the QueryCreationContext. This object contains the variables that may be necessary when creating the query. The QueryCreationContext.getUser method returns the user that is running the search and as such should be used to perform any security checks that may be necessary. The QueryCreationContext.isSecurityOverriden method indicates whether or not this function should actually perform security checks. When it returns `true`, the factory should assume that the searcher has permission to see everything in JIRA. When it returns `false`, the factory should perform regular security checks.

A ClauseQueryFactory should try to limit the queries so that issues that the user cannot see are excluded. Consider the query `affectsVersion = "1.0"`. The ClauseQueryFactory might detect that there are two versions named "1.0", one from project1 and the other from project2. The factory might then notice that the user doing the search cannot see project1. The factory can then return a query that contains only the version from project2. This is mainly an efficiency concern as JIRA filters all search results to ensure users cannot see issues they are not allowed to.

The ClauseQueryFactory does **not** need to check if the passed ClauseQueryFactory is meant for it; JIRA makes sure that it only passes TerminalClauses that the ClauseQueryFactory is meant to process. It does that by only passing TerminalClauses whose "field" matches one of the JQL names the custom field must handle. Put simply, the ClauseQueryFactory must handle any passed TerminalClause.

The ClauseQueryFactory must also handle the situation when an invalid TerminalClause is passed to it. An invalid TerminalClause is one whose associated ClauseValidator would not validate. The ClauseQueryFactory must return an empty Lucene search if the passed TerminalClause is invalid. Most importantly, the ClauseQueryFactory must not throw an exception on an invalid TerminalClause.

A ClauseQueryFactory needs to be careful when implementing any of the negating operators (i.e. !=, !~, "not in"). These operators should not match what is considered empty by the custom field and CustomFieldSearcher. For example, the JQL query `resolution is EMPTY` will return all unresolved issues in JIRA. The query `resolution != fixed` will only return all resolved issues that have not been resolved as "fixed", that is, it will not return any unresolved issues. The user has to enter the query `resolution != fixed or resolution is EMPTY` to find all issues that are either unresolved or not resolved as "fixed".

A ClauseQueryFactory also needs to consider field visibility. A CustomFieldSearcher should not match any issues where its associated custom field is not visible. Importantly, asking for EMPTY should not match issues where the custom field is not visible. For example, the JQL query `resolution is EMPTY` will not return issues from a project whose resolution field has been hidden. A hidden field is assumed not to exist.

There are some extra interfaces that the CustomFieldSearcherClauseHandler may also implement to provide optional functionality to the searching subsystem:

- ValueGeneratingClauseHandler: Gives the CustomFieldSearcher the ability to suggest some values during JQL entry auto-complete. This is really only useful for custom fields whose values come from an allowable finite set.
- CustomFieldClauseSanitiserHandler: Gives the CustomFieldSearcher the ability pre-process the query and remove sensitive information from the query before it is displayed to the passed user.
- CustomFieldClauseContextHandler: Gives the CustomFieldSearcher the ability to customise JIRA's query context calculation. This interface is best left alone, unexplained and unimplemented.

Integrating into the Issue Navigator

The good old Issue Navigator still exists. The Issue Navigator actually has two modes: simple and advanced. The simple mode is what was considered the Issue Navigator in JIRA 3.x. Each searcher on the simple Issue Navigator represents a Clause. For example, selecting "JIRA" in the project searcher produces the `Clause project = JIRA`. Using multiple searchers is achieved by ANDing the multiple implied Clauses together. In this way the simple Issue Navigator actually generates JQL.

The advanced mode shows the raw JQL to the user. It allows a user to search by entering arbitrary JQL. Since it simply shows JQL, it is possible to create a query using the simple Issue Navigator and then view it in the advanced Issue Navigator. However, it may not always be possible to go from the advanced Issue Navigator to the simple Issue Navigator, as the simple view only allows a very limited set of JQL. A JIRA user will be able to move from the advanced to the simple Issue Navigator when the current JQL can be represented in the simple view. JIRA will stop a user from transitioning from the advanced to the simple Issue Navigator when the JQL is just too complicated to represent correctly.

The CustomFieldSearcher itself is still responsible for integrating into the Issue Navigator. The CustomFieldSearcher extends from the IssueSearcher, which has undergone major cosmetic surgery in JIRA 4.0. The main change is that the methods on the

IssueSearcher have been relocated to new interfaces that the IssueSearcher composes. For example, JIRA 3.x used to call issueSeacher.getEditHtml() to get the searcher's HTML but now in 4.0 it calls issueSeacher.getSearchRenderer().getEditHtml(). The following table shows a summary of all the changes:

Old Searcher Method	New Seacher Interface	New Seacher Method	Comments
getEditHtml	SearchRenderer	getEditHtml	Inserted a new User parameter as the first argument.
getViewHtml	SearchRenderer	getViewHtml	Inserted a new User parameter as the first argument.
isShown	SearchRenderer	isShown	Inserted a new User parameter as the first argument.
isRelevantForSearchRequest	SearchRenderer	isRelevantForQuery	Inserted a new User parameter as the first argument. See description below.
getId	SearcherInformation	getId	
getNameKey	SearcherInformation	getNameKey	
	SearcherInformation	getField	Added in JIRA 4.0. See description below.
getRelatedIndexers	SearcherInformation	getRelatedIndexers	
	SearcherInformation	getSearcherGroupType	Added in JIRA 4.0. See description below.
populateFromParams	SearchInputTransformer	populateFromParams	Inserted a new User parameter as the first argument.
validateParams	SearchInputTransformer	validateParams	Inserted a new User parameter as the first argument.
populateFromSearchRequest	SearchInputTransformer	populateFromQuery	Changed the method name and arguments to work with JQL. See the discussion below.
	SearchInputTransformer	doRelevantClausesFitFilterForm	Added in JIRA 4.0. See discussion below.
populateSearchRequest	SearchInputTransformer	getSearchClause	Changed the method name and arguments to work with JQL. See the discussion below.
register			Removed as it is no longer necessary.
getQuerySnippet			Removed as it is no longer necessary.
getStringValue			Removed as it is no longer necessary.
getName			Removed as it is no longer necessary.

The SearcherRender interface groups together the rendering related IssueSearcher actions. The new method isRelevantForQuery takes over the role from the isRelevantForSearchRequest method. Its job is to take a complete Query object and determine if the CustomFieldSearcher is relevant for that Query. The result is used to decide if the HTML from the getViewHtml is included on some JIRA pages. As a general rule, this essentially involves walking the Query and looking for TerminalClauses related to the CustomFieldSearcher. For example:

```
final NamedTerminalClauseCollectingVisitor clauseVisitor = new
NamedTerminalClauseCollectingVisitor(clauseNames.getJqlFieldNames());
if (query != null && query.getWhereClause() != null)
{
    query.getWhereClause().accept(clauseVisitor);
}
return clauseVisitor.containsNamedClause();
```

This code essentially walks the tree looking for all `TerminalClauses` that have a particular set of names. The `Query` is relevant if such a `Clause` exists or is not relevant otherwise.

The `isRelevantForQuery` method is only called if the passed Query fits in the simple Issue Navigator.

The `SearcherInformation` interface groups together methods that return data about the `IssueSeacher` into a single interface. The `SearcherInformation.getField` method simply returns the `Field` associated with the searcher. This information is available to the searcher once the `CustomFieldSearcher.init()` is called by JIRA.

`SearcherInformation.getSearcherGroupType` is a method that returns the group the searcher should be seen in on the navigator. The custom field has to return `SearcherGroupType.CUSTOM`. JIRA will always force this value even if it is specified as something different.

The `SearchInputTransformer` interface groups together those methods on the `IssueSearcher` that convert `Query` objects into different forms so that they can be displayed and manipulated using the simple Issue Navigator. The simple Issue Navigator does not have the ability to represent all possible JQL queries. The `SearchInputTransformer.doRelevantClausesFitFilterForm` method allows JIRA to ask the `CustomFieldSearcher` if the passed `Query` can be represented in the simple Issue Navigator. This is used by JIRA to stop people trying to view complex JQL in the simple Issue Navigator. When this call is made, the `CustomFieldSearcher` must decide if the relevant sections of the passed `Query` can be represented in the simple Issue Navigator form. Irrelevant `Clauses` (i.e. those `Clauses` unrelated to the Searcher) should be ignored. The method must return true when the `Query` is not at all relevant. This method is normally implemented by walking the `Query` and checking that any relevant `TerminalClauses` are connected via the correct set of logical conditions. For example, here is some common code encountered with JIRA's internal searchers:

```
if (query != null && query.getWhereClause() != null)
{
    final Clause whereClause = query.getWhereClause();
    final SimpleNavigatorCollectorVisitor collector = new
SimpleNavigatorCollectorVisitor(clauseNames.getJqlFieldNames());
    whereClause.accept(collector);
    if (!collector.isValid() || collector.getClauses().size() > 1)
    {
        return false;
    }
    else if (collector.getClauses().size() == 1)
    {
        final TerminalClause terminalClause = collector.getClauses().get(0);
        return checkOperator(terminalClause.getOperator()) &&
checkOperand(terminalClause.getOperand(), true);
    }
}
return true;
```

The code starts by creating a `ClauseVisitor` that will find all the `TerminalClauses` with particular names. This visitor will also detect whether or not the all paths from the root `Clause` of the tree to the `TerminalClauses` are only through `AndClauses`. This check is made to ensure that these `TerminalClauses` form part of a simple AND expression since the simple Issue Navigator can only support AND operators between Clauses. The code also ensures that only one `TerminalClause` is found since this is what the `CustomFieldSearcher` generates for the simple Issue Navigator. Note that the method will return true if no relevant `TerminalClauses` are found.

The new `SearchInputTransformer.populateFromQuery` method replaces the old `populateFromSearchRequest`. It essentially takes the passed `Query` and serialises the relevant parts into their associated `FieldValuesHolder` representation. It is up to this `CustomFieldSearcher` to work out which parts of the `Query` are relevant to it. It must ignore those parts of the `Query` that it was not designed to handle. This method will only be called if it is known that the `Query` fits in into the simple Issue Navigator. It is generally implemented by walking the tree and looking for the relevant `TerminalClauses` and subsequently serialising them into the passed `FieldValuesHoldler`. For example:

```
if (query.getWhereClause() != null)
{
    final ClauseVisitor visitor = new DateSerializer();
    query.getWhereClause().accept(visitor);
    fieldValuesHolder.put(dateSeacherConfig.getPreviousField(), visitor.getPreviousDate());
    fieldValuesHolder.put(dateSeacherConfig.getNextField(), visitor.getPreviousDate());
}
```

In this example we used a `ClauseVisitor` that walks the `Query` and calculates the parameters for a date-based searcher. Once the visitor is run, we simply add the calculated parameters to the `FieldValuesHolder`.

The `SearchInputTransformer.getSearchClause` method replaces the old `populateSearchRequest`. Its job it to take a take the relevant values from the `FieldValuesHolder` and generate a `Clause` for them. This `Clause` will be combined with the `Clauses` from other active searchers using the AND operator to produce the final Query on the simple Issue Navigator. The irrelevant values from the `FieldValueHolder` must be ignored. This method is generally called after JIRA has called `SearchInputTransformer.populateFromParams` with the web parameters returned from the filter form, that is, this method is how the filter form is converted into a `Clause` and subsequently a Query. Consider the following example:

```
final Clause relativeClause = createPeriodClause((String)
fieldValuesHolder.get(dateSearcherConfig.getPreviousField()),
    (String) fieldValuesHolder.get(dateSearcherConfig.getNextField()));
final Clause absoluteClause = createDateClause((String)
fieldValuesHolder.get(dateSearcherConfig.getAfterField()),
    (String) fieldValuesHolder.get(dateSearcherConfig.getBeforeField()));
return createCompoundClause(relativeClause, absoluteClause);
```

This example demonstrates how a date field looks in the `FieldValueHolder` for its relevant properties and uses them to create a `Clause`. This example also shows that the returned `Clause` can be as complex as the `CustomFieldSearcher` wants.

The `SearchInputTransformer.getSearchClause` and `SearchInputTransformer.populateFromQuery` really form a pair. The `Clause` returned from `SearchInputTransformer.getSearchClause` must be correctly processed by `SearchInputTransformer.populateFromQuery`. If this does not occur, then it would be possible to generate a query in the simple Issue Navigator view that cannot actually be viewed in it. This also implies passing the `Clause` object returned from `SearchInputTransformer.getSearchClause` to the `SearchInputTransformer.doRelevantClausesFitFilterForm` must return true.

JIRA 3.x to 4.0 Filter Upgrade

In JIRA 3.x saved seaches (aka. filters) were stored in the database as XML. In JIRA 4.0, all searchers are stored directly as JQL. An upgrade task has been written to convert 3.x filters into JQL. Unfortunately, there is no way for plugin developers to integrate into this upgrade task. This essentially means that the upgrade may fail if you have a custom `SearchParameter` or use an existing `SearchParameter` in an unorthodox way. JIRA will inform users through e-mail if any of their filters could not be upgraded cleanly. The administrator is also made aware of any problems through JIRA's log files.

Converting Portlets to Gadgets

JIRA 4.0 introduces a new dashboard based on the OpenSocial specification. Legacy portlets will still be supported, but they will miss out on a lot of new features (e.g. displaying the gadget on iGoogle). As such you may wish to convert your plugin's portlets to gadgets. To do so please follow the documentation available in the Gadget Development Hub, as well as the instructions for writing a plugin upgrade task to convert any portlet settings that users may have saved.

Upgrading JIRA 2.x Data to JIRA 4.0

If you are upgrading from JIRA 2.x data (or earlier) to JIRA 4.0, you **must upgrade to any JIRA 3.x release first** (3.13.5 recommended). You can then follow the JIRA 4.0 Upgrade Guide to upgrade your JIRA instance to 4.0.

Writing a Plugin Upgrade Task for JIRA 4.0

Overview

JIRA 4.0 will introduce a new dashboard, effectively making the Portlet Plugin Module obsolete. Legacy portlets will still be supported via a Legacy Gadget bridge; however, they will miss out on a lot of the new features that gadgets offer (e.g. the ability to share gadgets with other apps such as iGoogle). It therefore makes sense to convert portlets over to gadgets. Information about how to write a gadget can be found in the Gadget Development Hub, and specifically the page about gadgets and JIRA portlets.

If you've converted a portlet to a gadget, you will most likely need an upgrade task to convert existing data of your users into the new format used by the gadget you have written. This page describes the process of creating such an upgrade task.

Why an upgrade task?

Portlets generally have some configuration data associated with them by their users. For example, the First Response Time chart portlet, available in the Charting Plugin, allows users to configure how many days previous to draw the chart for (among other things). For efficiency reasons, gadgets do not use the same storage mechanism as portlets do to store these user preferences. An upgrade task is thus needed to convert existing user data over to the new format required by the new gadget.

Upgrade framework

JIRA 4.0 introduces a new plugin framework (version 2.2 or later of the Atlassian Plugin Framework, affectionately known as 'Plugins2'), which provides an events system that lets plugins register to listen for certain events (such as a 'Framework started' event). JIRA 4.0 also bundles SAL, which already includes a plugin upgrade framework. SAL provides a plugin upgrade manager that listens for the 'Framework started' event and will look for Plugin Upgrade Tasks to run in order to upgrade data for plugins.

What does all this mean? Effectively, plugin writers don't have to worry about providing an upgrade task framework. They can simply provide a Plugin Upgrade Task component and SAL will guarantee that their upgrade task is run on startup.

Example

Let's look at what needs to be done to run an upgrade task to convert the First Response Time chart portlet data over to gadget data.

1. Convert your Portlet to a Gadget

Please follow the documentation available in the Gadget Development Hub for this step, and specifically the page about gadgets and JIRA portlets.

2. Add dependency on SAL

First we'll need access to the SAL API in the charting plugin project. Add the following dependency to the plugin's `pom.xml`:

pom.xml

```
...
  <dependency>
     <groupId>com.atlassian.sal</groupId>
     <artifactId>sal-api</artifactId>
     <version>2.0.17</version>
     <scope>provided</scope>
  </dependency>
...
```

Re-generate your IDE's project descriptor (`mvn idea:idea` or `mvn eclipse:eclipse`) after this step to allow you to access the new SAL API classes in your project.
3. Convert your plugin to Plugins2

SAL is a Plugins2 bundle and your plugin will have to be converted to the Plugins2 format first before you can write an upgrade task that will be picked up by the PluginUpgradeManager. Gadgets are also only supported in Plugins2 bundles.

There are generic instructions available for how to do this, but let's look specifically at the Charting plugin example. The only thing that is needed is to add the **`plugins-version="2"`** attribute in `atlassian-plugins.xml`:

atlassian-plugins.xml

```
<atlassian-plugin key="${atlassian.plugin.key}" name="${project.name}" system="true"
plugins-version="2">
...
```

4. Writing your upgrade task

Now that all the prerequisites are done, the Upgrade task for the plugin can be written. This class simply needs to implement the PluginUpgradeTask interface provided by SAL.

Here's an example implementation:

GadgetUpgradeTask.java

```
package com.atlassian.jira.ext.charting.upgrade;

import com.atlassian.configurable.ObjectConfigurationException;
import com.atlassian.gadgets.dashboard.Color;
import com.atlassian.jira.ComponentManager;
import com.atlassian.jira.portal.OfbizPortletConfigurationStore;
import com.atlassian.jira.portal.PortletConfiguration;
import com.atlassian.jira.portal.PortletConfigurationImpl;
import com.atlassian.jira.portal.PortletConfigurationStore;
import com.atlassian.jira.propertyset.JiraPropertySetFactory;
import com.atlassian.jira.upgrade.util.SimpleLegacyPortletUpgradeTask;
import com.atlassian.jira.util.Consumer;
import com.atlassian.jira.util.NotNull;
import com.atlassian.jira.util.collect.EnclosedIterable;
import com.atlassian.sal.api.message.Message;
import com.atlassian.sal.api.upgrade.PluginUpgradeTask;
import com.opensymphony.module.propertyset.PropertySet;
import org.apache.log4j.Logger;

import java.net.URI;
import java.util.Collection;
import java.util.Map;

public class GadgetUpgradeTask implements PluginUpgradeTask
```

```
{
    private static final Logger log = Logger.getLogger(GadgetUpgradeTask.class);

    private final PortletConfigurationStore portletConfigurationStore;
    private final JiraPropertySetFactory propertySetFactory;

    public GadgetUpgradeTask(JiraPropertySetFactory propertySetFactory)
    {
        //NOTE: Can't get the portletConfigStore injected here since it is not made available to
plugins2
        this.portletConfigurationStore =
ComponentManager.getComponentInstanceOfType(PortletConfigurationStore.class);
        this.propertySetFactory = propertySetFactory;
    }

    /**
     * The build number for this upgrade task. Once this upgrade task has run the plugin manager
will store this
     * build number against this plugin type.  After this only upgrade tasks with higher build
numbers will be run
     */
    public int getBuildNumber()
    {
        return 1;
    }

    public String getShortDescription()
    {
        return "Upgrades legacy portlet configuration to new gadget user prefs.";
    }

    public Collection<Message> doUpgrade() throws Exception
    {
        final SimpleLegacyPortletUpgradeTask upgradeTask =
                new
SimpleLegacyPortletUpgradeTask("com.atlassian.jira.ext.charting:firstresponsetime",

URI.create("rest/gadgets/1.0/g/com.atlassian.jira.ext.charting:firstresponsetime/firstresponsetime.xm
//First get all the portletConfigurations in the database.
        final EnclosedIterable<PortletConfiguration> iterable =
portletConfigurationStore.getAllPortletConfigurations();
        iterable.foreach(new Consumer<PortletConfiguration>()
        {
            public void consume(@NotNull final PortletConfiguration pc)
            {
                //for each portletconfiguration, check if it's key matches the portlet key we want
to upgrade
                if (pc.getKey() != null && pc.getKey().startsWith(upgradeTask.getPortletKey()))
                {
                    log.info("Upgrading portletconfig with id '" + pc.getId() + "'");
                    //first lets convert the preferences for this portlet to the new prefs format
used for gadgets.
                    final Map<String, String> prefs;
                    try
                    {
                        prefs = upgradeTask.convertUserPrefs(pc.getProperties());
                    }
                    catch (ObjectConfigurationException e)
                    {
                        throw new RuntimeException(e);
                    }
                    //then create essentially a copy of the old portletConfig.  This new copy no
longer needs to have
                    //the portletKey and propertySet set to any values.  It however does require
the GadgetUri and user prefs to be set.
                    final PortletConfiguration newConfig =
                            new PortletConfigurationImpl(pc.getId(), pc.getDashboardPageId(),
null, null, pc.getColumn(), pc.getRow(),
                                    null, upgradeTask.getGadgetUri(), Color.color8, prefs);
                    //Now lets store this new config back to the database.
                    portletConfigurationStore.store(newConfig);
                    //clear out the old properties for this portlet
                    removePropertySet(pc);
                }
            }
```

```
        });

        return null;
    }

    private void removePropertySet(final PortletConfiguration pc)
    {
        final PropertySet livePropertySet =
propertySetFactory.buildNoncachingPropertySet(OfbizPortletConfigurationStore.TABLE, pc.getId());
        @SuppressWarnings ("unchecked")
        final Collection<String> keys = livePropertySet.getKeys();
        for (String propertyKey : keys)
        {
            livePropertySet.remove(propertyKey);
        }
    }

    /**
     * Identifies the plugin that will be upgraded.
     */
    public String getPluginKey()
    {
```

```
            return "com.atlassian.jira.ext.charting";
        }
    }
```

There are a few things to note about this implementation:

- `getBuildNumber()` and `getPluginKey()` determine if this upgrade task will run. `getPluginKey()` needs to match the key of the plugin that is being upgraded (in this case the charting plugin). `getBuildNumber()` returns the buildnumber for this upgrade task. `'1'` will do for any plugin that hasn't had any upgrade tasks run against it yet. SAL's PluginUpgradeManager will run this upgrade task and store the buildnumber against the plugin once completed. After this, **only** upgrade tasks with a higher build number than '1' will be executed.
- `doUpgrade()` uses some helpers provided by JIRA (i.e. the SimpleLegacyPortletUpgradeTask) to convert the legacy portlet to a gadget. This is entirely optional, however, and plugin authors are free to implement this method however they like.

> Please ensure that the plugin upgrade task **ONLY** upgrades `portletConfigurations` for the plugin that's being upgraded! Any other `portletConfigurations` MUST be left untouched, as otherwise there's a risk of clobbering other portlets' data!

5. Register the upgrade task

Now we simply need to register the upgrade task as a component in the plugin:

atlassian-plugin.xml

```
...
 <component key="gadgetUpgradeTask" name="Gadget Upgrade Task"
 class="com.atlassian.jira.ext.charting.upgrade.GadgetUpgradeTask" public="true">
     <interface>com.atlassian.sal.api.upgrade.PluginUpgradeTask</interface>
 </component>
...
```

The PluginUpgradeManager in SAL will automatically scan for components that implement the `PluginUpgradeTask` interface. Please note that they have to be declared as **`public="true"`**.

That's it. Simply re-package the plugin, deploy it to the instance of JIRA to upgrade and restart the JIRA instance. The plugin upgrade task should be executed when JIRA starts up.

> It's highly recommended that you perform a backup of your JIRA instance before attempting this!

JIRA 4.0.2 Release Notes

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

26 February 2010

The Atlassian JIRA team is proud to announce the release of **JIRA 4.0.2**. This point release contains over 40 bug fixes and improvements, notably including:

- The gadget resizing issue.
- Greatly improved stability of JIRA gadgets in Confluence.
- Support for WebLogic 9.2.

JIRA 4.0.2 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4 yet?
Take a look at all the new features in the JIRA 4.0 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.0.2 Upgrade Guide.

Updates and Fixes in this Release

JIRA 4.0.2 includes the following updates and bug fixes:

JIRA Issues (37 issues)				
Type	Key	Summary	Priority	Status
	JRA-20681	wiki documentation: Dashboard JIRA 4.0 ... Configuring JIRA Standalone		Resolved
	JRA-20503	Improvement in "deactivate user' documentation		Resolved
	JRA-20437	Only System Administrators can add gadgets to the directory		Resolved
	JRA-20136	Add a note about deleting the work directory when upgrading the war distribution from a previous installation of JIRA		Resolved
	JRA-19926	Doc: Installing JIRA on websphere 6.1 doc needs updating		Resolved
	JRA-19862	Add "/rest" to default URLs on screen for adding a new trusted application		Resolved
	JRA-20038	Pcounter value not kept correctly between project description changes		Resolved
	JRA-19940	Fogbugz importer is not compatible with Fogbugz 7.0 release		Resolved
	JRA-19919	JQL function "linkedIssues" is case-sensitive or not depending on the DB		Resolved
	JRA-19916	Gadget is resizing at oauth button screen in IE and Safari causing the button to be obscured		Resolved
	JRA-19861	If you use a screen in a workflow draft (but not a workflow), you are able to delete the screen which makes the Administration --> Workflow screen impossible to access.		Resolved
	JRA-19856	WordCurlyQuotesRequestWrapper breaks OAuth signing process		Resolved
	JRA-19820	Unix shell startup script doen't set PermGen option for Sun JVM		Resolved
	JRA-19713	Startup Failure on Weblogic: Plugin Event Listener 'com.atlassian.jirafisheyeplugin.rest.fisheye.FishEyeRestApiManagerImpl@1fecc91' threw an error on event 'com.atlassian.plugin.event.events.PluginFrameworkShutdownEvent@2f179cc': erroneous handlers		Resolved
	JRA-19367	JIRA v4.0.0 does not work on Weblogic Server		Resolved
	JRA-20223	LDAP Configurer doesn't use new JIRA-specific Profile and Access providers		Resolved
	JRA-19966	Most JIRA gadgets cannot be configured on Dashboard in IE7 due to resizing bug		Resolved
	JRA-19899	"Edit" and "OAuth" icon is not properly visible when user customize "Assigned to me" JIRA gadget in Confluence		Resolved
	JRA-19886	Dashboard gadgets ajax requests are cached by IE and thus sometimes shows outdated data		Resolved
	JRA-19764	The OSUser User object is not serializable, and this can cause JIRA users to get logged out.		Resolved
	JRA-19753	addFreeTextCondition() assumes environment field is visible to user performing the query		Resolved
	JRA-19726	System Error when setting up JIRA for the first time with Profiling Filter set to auto start		Resolved
	JRA-19699	NumberFormatException thrown when trying to import project with no assigneetype attribute set		Resolved
	JRA-19627	Switching between tabs after editing a field on IE causes the "Are you sure you want to navigate away" popup dialog box to appear every time		Resolved

	JRA-19520	Issue not displaying in full in I.E. 7		Resolved
	JRA-19473	Australian English in the US English language pack		Resolved
	JRA-19351	Translating JIRA doco page is outdated		Resolved
	JRA-21150	Soap deleteProject call may try to delete an issue more than one time causing it to fail with an Exception		Resolved
	JRA-20376	Unresolved png (!workflow-publishdraft.png!) in online doc		Resolved
	JRA-20128	Include XSS security warning on HTML macro description in Wiki Markup Renderer		Resolved
	JRA-19988	JIRA keyboard shortcuts incorrect in documentation		Resolved
	JRA-19852	The package scanner used for OSGi plugins can extract incorrect version numbers when there is a number in the library name.		Resolved
	JRA-19836	Broken link in jira standalone windows installer		Resolved
	JRA-19817	Default permission scheme -- not selected as default on project creation		Resolved
	JRA-19801	Czech translation typo in issue view page (prolému)		Resolved
	JRA-19605	Gadget iframe height sometimes doesnt expand enough to fit entire gadget contents		Resolved
	JRA-10934	'Assign to me' shortcut on bulk edit page doesn't autotick the 'Change assign to' checkbox		Resolved

JIRA 4.0.2 Upgrade Guide

Please note the following before performing this upgrade:

Please test your business-critical gadgets
As with any new and rapidly evolving technology, gadgets offer exciting opportunities — and potential technology incompatibilities. If your cross-server gadgets are working successfully with JIRA 4.0, and you rely on these gadgets for business purposes, please test them with JIRA 4.0.2 on a non-production server before upgrading.

Upgrading from JIRA 4.0 or 4.0.1 to 4.0.2

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.13.x and earlier

In addition to the above, please read the JIRA 4.0 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.0.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

8 December 2009

The Atlassian JIRA team is proud to announce the release of **JIRA 4.0.1**. This point release contains over **60** bug fixes and improvements, notably including the gadget loopback issue. We are also very pleased to announce support for WebSphere 6.1.0.27.

JIRA 4.0.1 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 4 yet?
Take a look at all the new features in the JIRA 4.0 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 4.0.1 Upgrade Guide.

Updates and Fixes in this Release

JIRA 4.0.1 includes the following updates and bug fixes:

JIRA Issues (77 issues)

Type	Key	Summary	Priority	Status
	JRA-21150	Soap deleteProject call may try to delete an issue more than one time causing it to fail with an Exception		Resolved
	JRA-20686	Issue navigator failure when profiling is on		Resolved
	JRA-20285	Remove the reference to the trunk version of property files from the Xlations page		Resolved
	JRA-19898	Modify the "Deactivating a User" section from the "Managing Users" Documentation		Resolved
	JRA-19818	Documentation on making the JIRA DB read-only is obsolete		Resolved
	JRA-19749	performance regression in Issue Navigator		Resolved
	JRA-19746	Put wheels back on the donkey cart		Resolved
	JRA-19730	JIRA 4.0.1 performance is ~40% slower than 4.0		Resolved
	JRA-19682	Activity stream on browse project uses project id as key instead of the project key		Resolved
	JRA-19675	POM not found for dependency woodstox:wstx-asl:3.2.4.		Resolved
	JRA-19669	The order of renderer-component-factory is not honoured		Resolved
	JRA-19664	SAL's implementation of the I18nResolver.getAllTranslationsForPrefix() for JIRA is very inefficient		Resolved
	JRA-19656	Browse project 'Issues' tab is missing the "and X more" section for By Component and By Version		Resolved
	JRA-19654	Take information from community space on multiple group & assignees and put cases into official doco		Resolved
	JRA-19649	Small quirk in viewworkflowtransition.jsp - line 110		Resolved
	JRA-19642	It is possible to delete statuses that are required in Workflows.		Resolved
	JRA-19641	Activity Stream broken on User Profile Page and Issue Tab Panel		Resolved
	JRA-19631	"English (United States)" Language Misspelling		Resolved
	JRA-19626	Legacy portlet to gadget upgrade task (438) can't deal with duplicate propertyset keys		Resolved
	JRA-19625	4.0 removed resolution and priority from Roadmap and Changelog		Resolved
	JRA-19624	Remove Java5 syntax from our JSPs		Resolved

	JRA-19623	SOAP interface sends 'account created' email for createUser method		Resolved
	JRA-19616	Update JIRA FishEye plugin to 3.0.13		Resolved
	JRA-19612	non-english editing of estimates broken		Resolved
	JRA-19599	Import Fails during Upgrade 3.13.5 -> 4.0		Resolved
	JRA-19586	Activity stream tries to load date javascript library using makerequest even when running locally		Resolved
	JRA-19580	Empty search requests pre-4.0 upgraded to JQL do not work correctly in Oracle		Resolved
	JRA-19573	Watched Issue Portlet/Gadget Default Columns Disappear		Resolved
	JRA-19552	Java VM Memory Statistics incorrect		Resolved
	JRA-19545	outdated screenshot in Look & Feel page		Resolved
	JRA-19542	JIRA back up service running twice at startup - Not sure why		Resolved
	JRA-19541	IssueNavigator does not compile when profiling is enabled		Resolved
	JRA-19531	order by clauses get dropped from saved filters when going to printable view		Resolved
	JRA-19513	JIRA ships with a duplicate xerces jar (ofbcore-xerces-serialize.jar) that can cause problems with OSGi dependencies.		Resolved
	JRA-19508	NPE on Setup page and user can't configure JIRA		Resolved
	JRA-19507	when creating/configuring custom fields, the 'Choose applicable issue types' heading has wrongly been changed		Resolved
	JRA-19504	"java script:false" causes 404s		Resolved
	JRA-19503	User Activity Streams are very slow to generate		Resolved
	JRA-19474	Please add the admin "Support Request" option to the Administration menu bar in the JIRA header		Resolved
	JRA-19468	Improvement for Tomcat 6.0 documentation		Resolved
	JRA-19460	ConcurrentModificationException in plugins system if non-default bundled plugin state is REMOVE		Resolved
	JRA-19448	VersionCheck code may have it round the wrong way - minimum version should be checked		Resolved
	JRA-19447	Small improvements to websphere docs		Resolved
	JRA-19442	Filter Results gadget should support canvas (maximize) mode		Resolved
	JRA-19437	Exceptions when instantiating a listener should not propagate to the client during event dispatch.		Resolved
	JRA-19436	Broken link in JIRA 4.0 footer		Resolved
	JRA-19430	Improve the dependency resolution in OSGi Plugins		Resolved

	JRA-19426	Advanced Search dialog is slow to load on an instance with a large number of custom fields		Resolved
	JRA-19422	NullPointerException when searching using select options that have the same name as previously deleted ones		Resolved
	JRA-19421	JIRA 4.0 does not work under WebSphere 6.1		Resolved
	JRA-19398	The workflow conditions in the Fisheye Plugin released in 4.0 are broken.		Resolved
	JRA-19391	Can't modify Issue Types Scheme		Resolved
	JRA-19384	JIRA v4.0.0 does not work with JRockit JVM		Resolved
	JRA-19379	JIRA 4 doesn't work with IBM JVM		Resolved
	JRA-19378	Error loading gadgets under WebLogic Server		Resolved
	JRA-19366	WorkflowManager should expose a method for updating draft workflows without audit		Resolved
	JRA-19352	JIRA doesn't work behind Apache with basic auth		Resolved
	JRA-19347	Adding external gadget fails in JIRA with MSSQL database		Resolved
	JRA-19346	Startup fails on WebLogic 10.3 with error "..InfrastructureException: Error occurred while starting Plugin Manager..."		Resolved
	JRA-19338	Source build is for 4.0 is broken		Resolved
	JRA-19309	Screenshot numbering broken		Resolved
	JRA-19306	Unable to perform search or return to simple searching		Resolved
	JRA-19296	Road Map progress bars link to incorrect issue navigator reports		Resolved
	JRA-19285	Support the easy configuration of portlets for integration with the Confluence portlet macro		Resolved
	JRA-19220	Nasty warning message when doing any activity while viewing an issue		Resolved
	JRA-19217	jira server doesn't handle a host file entry on the client properly		Resolved
	JRA-19198	Classloader leak in atlassian-plugins-2.3.1		Resolved
	JRA-19181	Wrong time unit in CVS Timeout parameter of CVS Module		Resolved
	JRA-19170	JIRA form template sets the id of the submit button to be the same as the value		Resolved
	JRA-19111	click on dashboard widget container didn't open a new page but rendered the page in the container		Resolved
	JRA-18738	Jira does not need to log the large stack trace when a user tries to make a comment on an issue that does not exist.		Resolved
	JRA-18369	Plugin 2 documentation should mention issues with webwork modules.		Resolved
	JRA-11363	Attach Screenshot Page Pops Up Nonsecure Warning in IE6 when run via https		Resolved

	JRA-11323	Log shutdowns in atlassian-jira.log		Resolved
	JRA-6446	Default issue view should show 'Date Attached' for attachments		Resolved
	JRA-5232	search filter "-" does not work when used alone.		Resolved
	JRA-3215	List of attachments - include name and date		Resolved

JIRA 4.0.1 Upgrade Guide

Upgrading from JIRA 4.0 to 4.0.1

Please note the following before performing this upgrade:

> **WebLogic 9.2 not supported**
> Please note that the WebLogic 9.2 patch issued for JIRA 4.0 in JRA-19367 may not work with JIRA 4.0.1 in all environments. We are addressing WebLogic 9.2 support and will provide a solution as soon as possible. If you are using WebLogic, please stay on JIRA 3.13.x in the interim.

> **Websphere version is important**
> WebSphere 6.1.0.27 is supported with JIRA 4.0.1. The version of WebSphere is important as we have seen issues running with WebSphere 6.1.0.3. Please see JRA-19421 for details. WebSphere 7.0 is not supported

> **Gadgets served to other servers may experience issues**
> As a result of fixing the 'loopback' problem (where a server had problems serving a gadget to itself), issues such as JRA-19890 may now be encountered when serving JIRA gadgets to iGoogle. As with any new and rapidly evolving technology, gadgets offer exciting opportunities — and potential technology incompatibilities. If your cross-server gadgets are working successfully with JIRA 4.0, and you rely on these gadgets for business purposes, please test them with JIRA 4.0.1 on a non-production server before upgrading.

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.13.x and earlier

In addition to the above (particularly regarding Websphere and WebLogic), please read the JIRA 4.0 Upgrade Guide and the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.13 Release Notes

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

9 September 2008

The Atlassian JIRA team is proud to present **JIRA 3.13**.

This release fulfils some of the most popular JIRA feature requests. Dashboards can now be shared, and filter sharing has been improved — so it's easy to set up multiple 'template' dashboards, each with specific portlets and filters. New JIRA users can then simply select the dashboards most suited to them.

People using customised workflows will be pleased to learn that JIRA 3.13 provides the ability to edit active workflows — that is, workflows that are currently being used. So workflow logic, transitions, screens and post-functions can now be tweaked on the fly, and a JIRA wizard will guide decisions on how active issues should be handled.

By popular request, you can now restore individual projects from a backup, making it much easier to merge projects back into your existing JIRA instance. We are also happy to announce that personal licenses are available with this release of JIRA.

Please be aware of JIRA Security Advisory 2008-08-26, which is relevant to this release.

Upgrading to JIRA 3.13 is free for all customers with active JIRA software maintenance.

Highlights of JIRA 3.13

- Shareable dashboards
- Improved filter sharing
- Favourite filters and dashboards
- Restoring projects
- Editable active workflows
- Enhanced sub-task quick creation
- Personal licenses
- Plugins
- Progress bar for long-running operations
- Application improvements
- Plus more than **200** other fixes and improvements

Thank you for your feedback

85 new feature and improvement requests implemented!

1485 votes fulfilled!

Your votes and issues help us keep improving our products, and are much appreciated.

Upgrading to JIRA 3.13
You can download JIRA 3.13 from the JIRA Download Center. Before upgrading, please refer to the JIRA 3.13 Upgrade Guide.

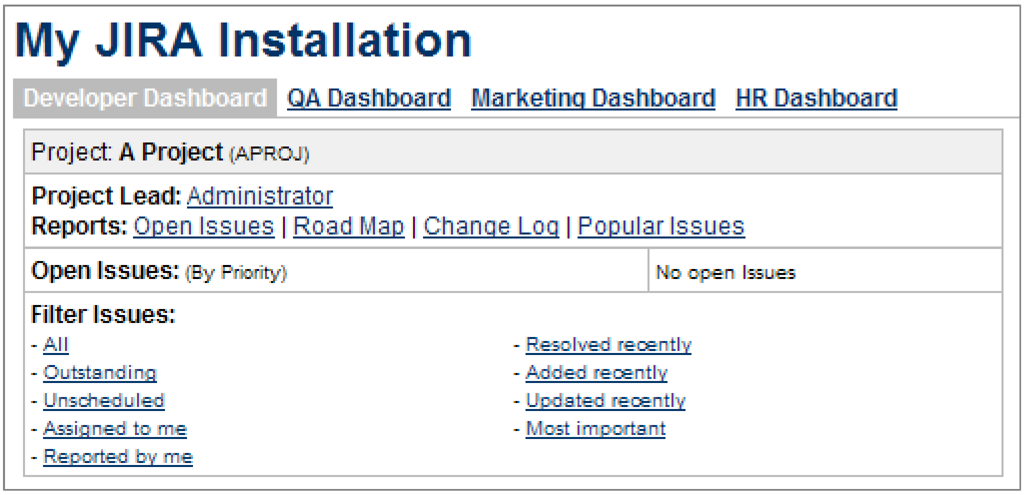
Highlights of JIRA 3.13

1

Shareable dashboards

In many organisations, different departments use different JIRA projects and so need a customised dashboard for people in each department to use. For instance, at Atlassian our HR team uses their own special 'Recruitment' project and workflow to manage the hiring process. JIRA 3.13 resolves this popular issue (434 votes!) by letting you set up dashboard pages that you can share with your user group, project or all JIRA users.

- Read more about shareable dashboards in the dashboard pages documentation.



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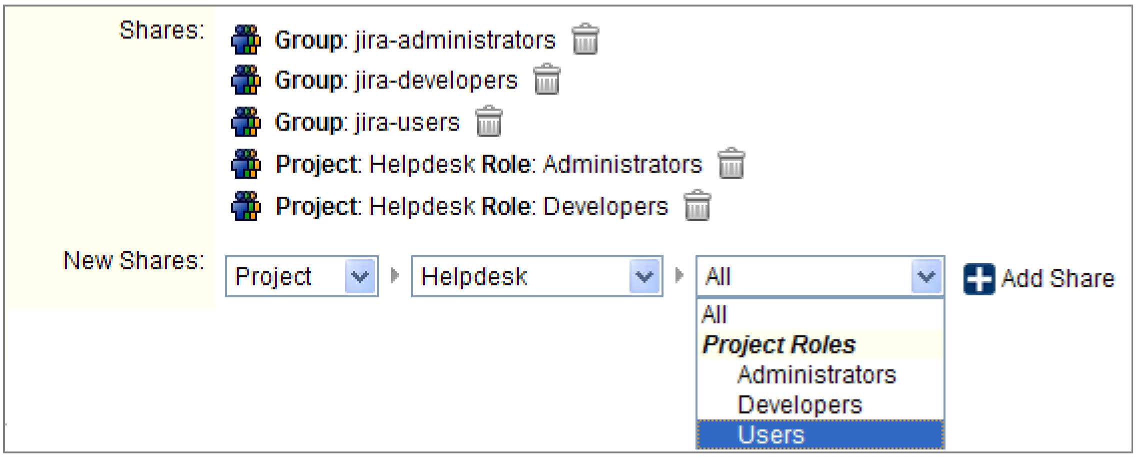
2

Improved filter sharing

Previous versions of JIRA allowed you to share filters, but filter sharing was restricted to sharing with a single user group or sharing with all

JIRA users. Filter sharing is much more flexible in this release. You can now also share your filter with multiple user groups, projects, specific project roles or any combination of these.

- Read more about shareable filters in the issue filters documentation.



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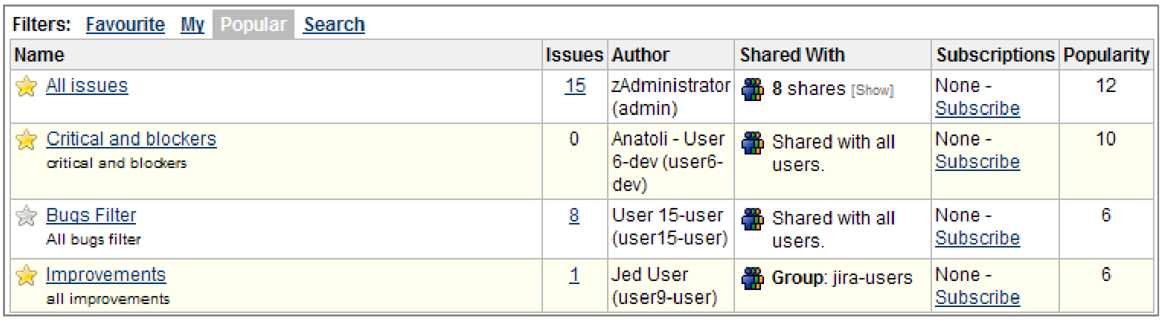
3

Favourite filters and dashboards

Keep your most commonly used filters and dashboards at your fingertips by adding them as favourites. You can add your own filters and dashboards as favourites in JIRA 3.13, as well as filters and dashboards shared with you by other users. We have also added search for filters and dashboards to help you find the tools you need to manage your information.

- Read more about favourite filters and dashboards in the issue filters and dashboard pages documentation.



Filters: Favourite My Popular Search

Name	Issues	Author	Shared With	Subscriptions	Popularity
All issues	15	zAdministrator (admin)	8 shares [Show]	None - Subscribe	12
Critical and blockers critical and blockers	0	Anatoli - User 6-dev (user6-dev)	Shared with all users.	None - Subscribe	10
Bugs Filter All bugs filter	8	User 15-user (user15-user)	Shared with all users.	None - Subscribe	6
Improvements all improvements	1	Jed User (user9-user)	Group: jira-users	None - Subscribe	6

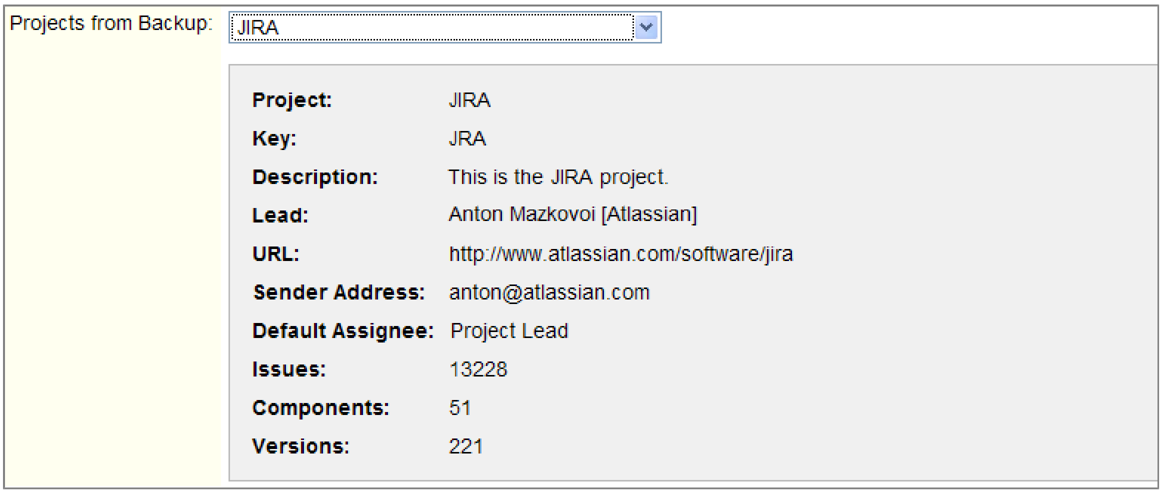
^Top

4

Restoring projects

One of the most voted for JIRA features has been included in this release — the ability to restore individual projects from a backup file (409 votes!). The project import feature allows you to select a project from a backup file and restore it into an existing JIRA instance, without losing the existing projects or data.

- Read more about restoring a project from backup.



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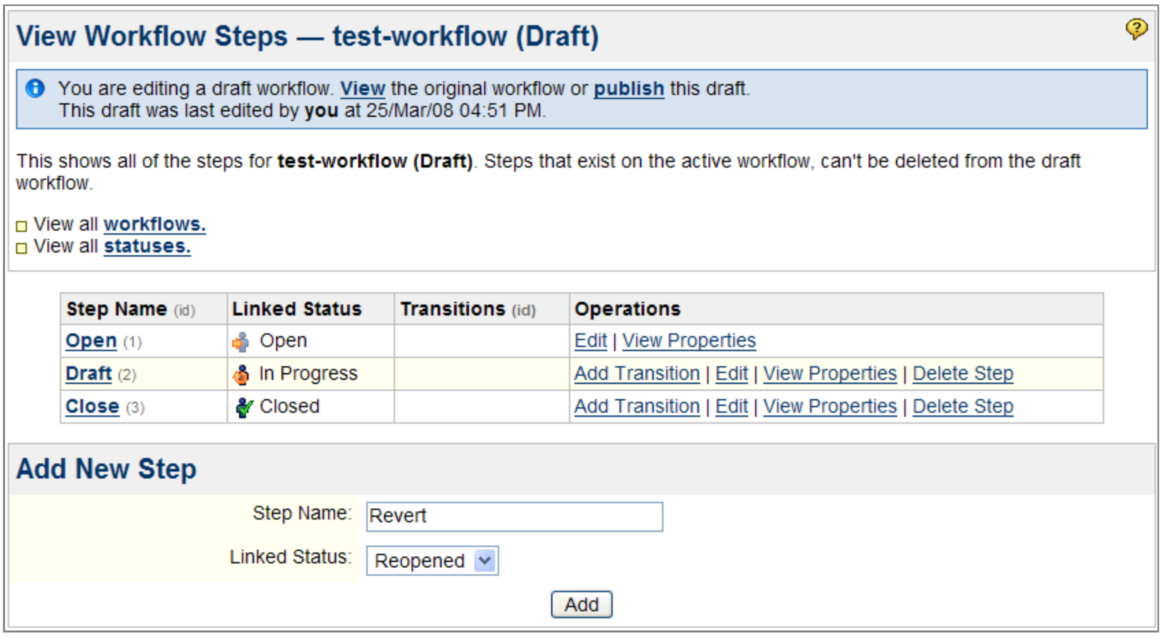
Editable active workflows

We have added the ability to edit active workflows in this release. You can now change most features of your active workflow without having to edit a separate copy of it.

- Read more about editing active workflows in the JIRA workflow documentation.



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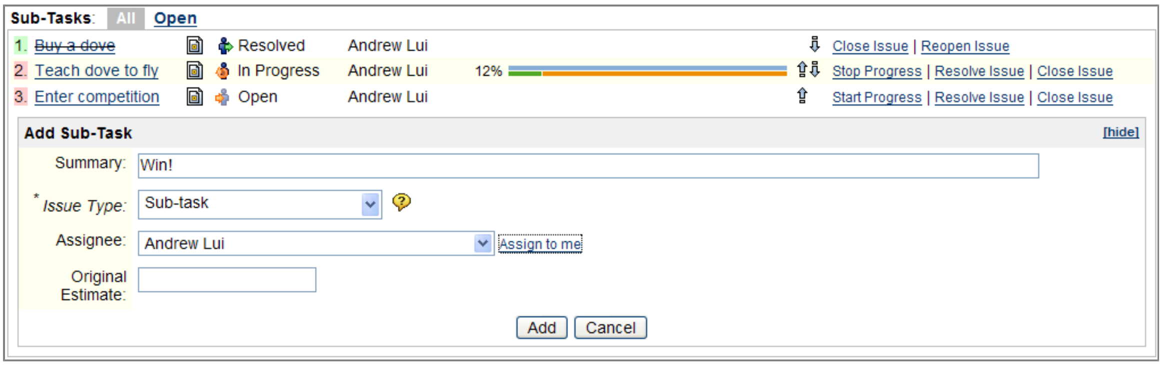
Enhanced sub-task quick creation

The sub-task 'quick creation' form included on the issue page in JIRA has been enhanced, making it easier for you to quickly add sub-tasks to an issue without having to navigate to a new page. The sub-task quick creation form includes new fields, such as the 'Original Estimate' field and can be easily hidden to reduce clutter on your screen.

- Read more about the sub-task 'quick creation' form in the creating a sub-task documentation.



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Personal licenses

Personal Licenses are now available with JIRA 3.13. Run your own individual non-commercial instance of JIRA under this free license. You can run your fully functional instance of JIRA indefinitely under this license, but you will not be eligible for Atlassian support.

- Read more about personal licenses.

^Top

Plugins

We are bundling a new version of the **FishEye plugin for JIRA** in this release, helping your JIRA instance to work even more closely with your FishEye and Crucible applications. You can now use the FishEye plugin for JIRA to integrate your JIRA instance with Perforce. In addition, we've added a bunch of cool new features to the plugin, including FishEye and Crucible specific charting portlets for JIRA, the integration of reviews and code commits into JIRA workflow and trusted applications support.

- Read more about the FishEye plugin for JIRA

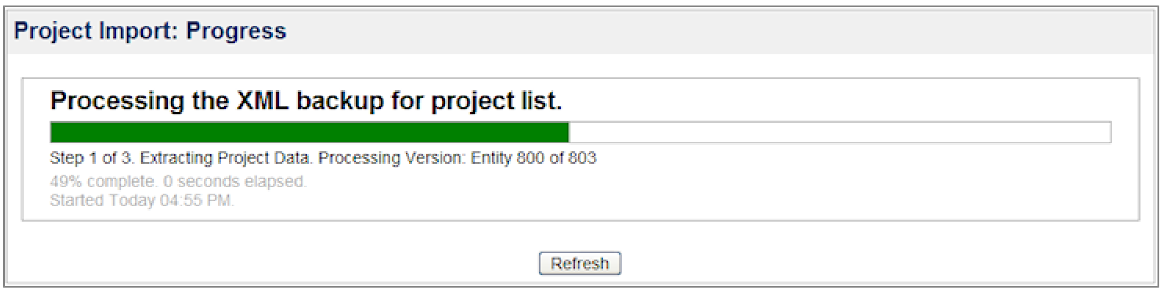
You may also be interested in integrating your JIRA instance with your Bamboo application. We have recently updated the **JIRA Bamboo plugin** with a host of new functionality to let you monitor your builds and issues. (Note that the JIRA Bamboo plugin is currently not bundled with JIRA.)

- You can get the plugin from the JIRA Bamboo Plugin page.

^Top

Progress bar for long-running operations

We have added a progress bar to a number of long-running operations in JIRA, including workflow migration, project import and re-indexing. This simple visual cue provides you with helpful information about your task, such as the time elapsed, percentage complete and the time you started it.



^Top

10

Application improvements

The version of Tomcat that is shipped with JIRA Standalone has also been upgraded to version 5.5.26 (previously Tomcat 5.5.20). Refer to the 5.5.x Release Notes on the Apache Tomcat website.

^Top

11

Plus more than 200 other fixes and improvements

The top 50 most popular issues resolved in JIRA 3.13 are listed below. See all the issues here.

JIRA Issues (50 issues)

Key	Type	Summary	Priority	Status	Votes
JRA-2509		Save, reuse and share Dashboards (like dashboard picklist)		Resolved	435
JRA-1604		Import / Export (backup / restore) individual projects		Resolved	409
JRA-4817		Ability to share custom Portals		Resolved	91
JRA-4139		Share filters with *multiple* groups		Resolved	82
JRA-10393		Personal JIRA license		Resolved	50
JRA-7887		Add saved filter types / categories - personal, favourite and all saved filters		Resolved	18
JRA-5803		Global portals, configurable project portlet, project groups		Resolved	13
JRA-9983		CreateOrCommentHandler - cc to watchers		Resolved	4
JRA-5806		Ability to subscribe to shared filters		Resolved	2
JRA-15117		Add user photos to JIRA action item headers for Studio		Resolved	0
JRA-7661		Ability to Edit Active Workflow - Editing Workflows is too inflexible		Resolved	177
JRA-3322		Multiple default dashboards		Resolved	131
JRA-11882		Filter sharing does not currently allow you to share with a role.		Resolved	41
JRA-6178		shared filters and "favorites"		Resolved	16
JRA-2394		Change attachment size limit in the Web Interface / GUI		Resolved	16
JRA-3021		Ability to hide a shared filter		Resolved	11
JRA-10859		Create a generic mechanism within JIRA that allows a user to fire off long running tasks but still receive feedback about the progress of the task.		Resolved	11

JRA-3769		Security levels should be sorted alphabetically or be orderable	Resolved	9
JRA-6124		Share filter per project (or project categorie)	Resolved	7
JRA-10525		Add progress bar to Workflow migration	Closed	6
JRA-5615		Allow default dashboard pages to be updated when multi portlet pages are used.	Resolved	5
JRA-12712		Allow users to select which filters appear in the "List ALL filters" portlet	Resolved	4
JRA-10292		Filters should be hideable	Resolved	2
JRA-10211		Allow specification of permissions on porlets	Resolved	2
JRA-14980		Suboptimal performance for Lucene queries within JIRA instances with a large number of projects and issue security levels	Resolved	2
JRA-12017		Workflow editor needs to be able to handle step="-1" for common-actions	Resolved	2
JRA-14547		Bypass 1st page of Create Issue (and Sub Task) wizard when there is no "choice" for issue type and project	Resolved	2
JRA-12466		Bulk Change should preserve configured columns	Resolved	2
JRA-15190		Deterioration of performance due to CachingVersionStore lock	Resolved	1
JRA-9524		edit name for Workflow	Resolved	1
JRA-12271		Print system info to the logs on startup	Resolved	1
JRA-15313		Saved Filter URLs do not respect additional parameters	Resolved	1
JRA-13913		Make the banner a background image rather than an object in the cell	Resolved	1
JRA-12978		Retain CVS information even if issue key changes	Resolved	1
JRA-15314		Put the version of JIRA in the head element of all XML/RSS results	Resolved	1
JRA-15098		Watches and Votes cannot handle users "disappearing" (ie being deleted from external user management).	Resolved	1
JRA-13346		Bugzilla importer should not ask for project key and project lead for existing JIRA projects	Resolved	1
JRA-15037		Avoid non wanted log out	Resolved	0
JRA-15049		Add better debugging information to portlet rendering	Resolved	0
JRA-14893		Do not render a hyperlink for a change history item for linking issues when the user does not have permissions to see the linked issue	Resolved	0
JRA-15289		Add information logging when we trigger a Lucene Index Optimize operation.	Resolved	0
JRA-14739		It would be useful to be able to manually reduce the estimated remaining time by a certain number of hours, rather than having to calculate and set the new estimate yourself.	Resolved	0
JRA-20830		CLONE -Add progress bar to Workflow migration	Closed	0
JRA-14070		Clickable Users in Issue Navigator table to see User's Profile	Resolved	0

JRA-13434	Include base URL in environment of support requests	Resolved	0
JRA-14551	Linkify the number of issues, which appear in the list on the Summary tab on the Browse Fix Version page	Resolved	0
JRA-14545	Assigned Open Issues per project on Profile page should suppress rows with a zero count	Resolved	0
JRA-14436	SMTP Server setup screen has text that sounds like multiple SMTP servers can be configured, but only one is available.	Resolved	0
JRA-14352	Update translation for Brazilian Portuguese	Resolved	0
JRA-14816	Update the text that appears on the error page when installing a JIRA build that is too new for the license	Resolved	0

^Top

JIRA 3.13 Upgrade Guide

Upgrading from JIRA 3.12.xx to 3.13

Please follow the JIRA general upgrade instructions, plus note the following:

1. Introduction of Favourite Dashboards and Filters

Favourite Dashboards

JIRA 3.13 introduces the favourite dashboards feature, which allows you to add dashboard pages that are owned by you or shared by other users as favourites (and hence, are displayed as tabs on your dashboard). On upgrade to JIRA 3.13, all your dashboard pages will be added as your favourites and displayed on your dashboard. If you do not wish any of your dashboards to be added as favourites, then you can remove them as favourites after the upgrade. See the dashboards documentation for details.

Favourite Filters

Similar to favourite dashboards, JIRA 3.13 introduces the favourite filters feature, which allows you to add issue filters that are owned by you or shared by other users as favourites. On upgrade to JIRA 3.13, all your issue filters will be added as your favourites. If you do not wish any of your filters to be added as favourites, then you can remove them as favourites after the upgrade. See the issue filters documentation for details.

please note, this change will not affect issue filter sharing, e.g. if you are using a shared issue filter in one of your dashboard portlets, it will still be shared with you after the upgrade.

please also note, that any custom developed portlets (or other JIRA objects that use filters that have been developed by 3rd parties) that have a dropdown list (not a pop-up picker) for filters, will now only show a list of the user's favourite filters, instead of all shared filters.

Favourite Filters portlet

The 'List All Filters' portlet has been replaced with the 'Favourite Filters' portlet in this release. Your dashboard will be automatically upgraded if it is currently configured to display the 'List All Filters' portlet.

2. Tomcat, MySQL database connection dropouts

Please note, if you wish to use a MySQL database with JIRA Standalone you must set up the bundled Tomcat server (version 5.5.26) to survive connection closures. You must also do this if you are running JIRA EAR/WAR in Tomcat 5.5.25 or later, or Tomcat 6.0.13 or later. Versions 5.5.25 and above of Tomcat 5, and versions 6.0.13 and above of Tomcat 6, have been noted to exhibit problems maintaining connections to MySQL databases. Please read this document for details on the changes required.

3. Changes to jira-application.properties

jira.subscription.email.max.issues property

The `jira.subscription.email.max.issues` property has been added to the `jira-application.properties` file. This property allows you to specify the maximum number of issues that can be included in an email subscription. The default value for this property is 200. You may wish to update this property after the upgrade if you wish to set a different limit on the number of issues that can be included in an email subscription. See the documentation on Advanced JIRA configuration with jira-application.properties for further details on this file.

4. Support for Portlet Plugins with JSP Views Discontinued

Portlet plugins with JSP views are no longer supported. If you have written a custom Portlet plugin and have used a JSP as the view template, you will need to convert your JSP to Velocity.

5. Updates to JIRA SOAP and XML-RPC APIs

com.atlassian.jira.rpc.soap.JiraSoapService

- replaced

```
RemoteProject[] getProjects(String token) throws RemoteException;
```

  with

```
RemoteProject[] getProjectsNoSchemes(String token) throws RemoteException
```

*You should use **getProjectsNoSchemes()** instead because it much more memory efficient and quicker.*

- added

```
RemoteProject getProjectWithSchemesById(String token, Long projectId) throws
RemoteException;
```

- deprecated

```
RemoteFilter[] getSavedFilters(String token) throws RemoteException;
```

- added

```
RemoteFilter[] getFavouriteFilters(String token) throws RemoteException;
```

com.atlassian.jira.rpc.xmlrpc.XmlRpcService

- replaced

```
Vector getProjects(String token) throws Exception;
```

  with

```
Vector getProjectsNoSchemes(String token) throws Exception;
```

- deprecated

```
Vector getSavedFilters(String token) throws Exception;
```

- added

```
Vector getFavouriteFilters(String token) throws Exception;
```

6. Crowd Cache Timeout

This is only applicable if you are using Crowd.

The default timeout for caching user details has changed from 5 minutes to 2 hours. This will improve the performance of the application but will mean that it will take longer for changes to user details to reach the application. Details on how to configure the Crowd caches can be found here.

Upgrading from JIRA 3.12 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.13.5 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

21 July 2009

The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.5** in Standard, Professional and Enterprise editions. This point release includes over **30** bug fixes and improvements.

JIRA 3.13.5 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.13 yet?
Take a look at all the new features in the JIRA 3.13 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.13.5 Upgrade Guide.

Updates and Fixes in this Release

JIRA 3.13.5 includes the following updates and bug fixes:

JIRA Issues (37 issues)

Type	Key	Summary	Priority	Status
	JRA-18173	The IssueType context calcuation is not correct.		Resolved
	JRA-17864	Plugins with broken "project-operation" modules can prevent other modules project-operations from being loaded		Resolved
	JRA-17685	Adding group for "Project Role Browser" using group picker is not working.		Resolved
	JRA-17623	IssuePicker ajax queries can use excessive memory		Resolved
	JRA-17582	Job ClassNotFoundException's causes all services to not run		Resolved
	JRA-17546	Time Tracking Report does not include resolved sub-task with selected version		Resolved
	JRA-17513	java.lang.IllegalStateException: getAttribute: Session already invalidated - Patch available		Resolved
	JRA-17446	Unable to export to file xml workflow in IE over HTTPS		

				Resolved
	JRA-17421	Installer does not substitute <jira_service_id> in the {start_service, stop_service}.bat scripts when not installing JIRA as a service.		Resolved
	JRA-17373	Improve https speed by adding Cache Control Public to the caching headers for resources in JIRA		Resolved
	JRA-17367	Outlook 2007 is unable to read JIRA RSS feeds over HTTPS		Resolved
	JRA-17360	Session Timeout dumps exception when viewing manage attachments		Resolved
	JRA-17244	Project import tries to import groups for any project's comment visibility field		Resolved
	JRA-17222	Issue linking within subtasks breaks when cloning		Resolved
	JRA-17188	Bug in autocomplete-widget.js. IE have bug in removeChild		Resolved
	JRA-17169	Ugly javadoc for IssueSearcher		Resolved
	JRA-17107	Administration Group Browser has broken pager		Resolved
	JRA-17011	bulk move (and hence bulk migrate) of issue populates subtasks' assignee list with wrong users		Resolved
	JRA-17005	Merge Versions sometimes sets the wrong version		Resolved
	JRA-16990	Unable to set transition property "jira.i18n.submit"		Resolved
	JRA-16912	ViewTranslations admin page throws exception when no locales exist		Resolved
	JRA-16902	Two Dimensional Filter Statistics breaks on Select CF with same value in two contexts, one of which is not associated with any project.		Resolved
	JRA-16836	Microsoft Internet Explorer 8 will not render Issue screen tabs correctly if not in IE8 standards compliant mode		Resolved
	JRA-16802	Unpredictional user changes		Resolved
	JRA-16520	Link to download JIRA XML documentation is broken...		Resolved
	JRA-16420	text on the Edit Issue Type Screen Scheme is incorrect		Resolved
	JRA-16411	'BEA Weblogic' should be 'Oracle Weblogic' in weblogic doc		Resolved
	JRA-15966	Public sign up should not be available, if external user management is ON		Resolved
	JRA-15950	Mantis importer duplicates some log messages		Resolved
	JRA-15914	Project import failing without attachments.		Resolved
	JRA-15835	Clicking on link "Configure"" after deleting all columns in Navigator columns do nothing		Resolved
	JRA-15831	Fogbugz importer fails to create links		Closed
	JRA-15333	'Add Portlet Link' displayed on empty system dashboard.		Resolved
	JRA-14580	Attachments are accessible for download using different urls		

				Resolved
	JRA-14388	MaxDB documentation should be dropped in version 4.0.		Resolved
	JRA-12886	Ugly reporting of failing validators on Create Issue		Resolved
	JRA-7830	Multi user picker loses checked users when Prev / Next clicked		Resolved

JIRA 3.13.5 Upgrade Guide

Upgrading from JIRA 3.13.x to 3.13.5

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.12.x and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.13.4 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

5 May 2009

The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.4** in Standard, Professional and Enterprise editions. This point release includes over **20** bug fixes and improvements.

JIRA 3.13.4 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.13 yet?
Take a look at all the new features in the JIRA 3.13 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.13.4 Upgrade Guide.

Updates and Fixes in this Release

JIRA 3.13.4 includes the following updates and bug fixes:

JIRA Issues (24 issues)

Type	Key	Summary	Priority	Status
	JRA-21063	Linked issues display incorrectly after applying security patch JRA-21004		Resolved
	JRA-16969	Define new views in entitymodel.xml and entitygroup.xml for FishEye plugin		Resolved
	JRA-16859	Jelly TransitionWorkflow through a workflow transition that uses a screen with the resolution field fails even if resolution is already set on the issue		Resolved
	JRA-16853	RPC Plugin does not use finally blocks around setUser calls on ActionContext.		Resolved
	JRA-16848	Mods Detector incorrectly reports removed files for JIRA Professional WAR/EAR deployments		Resolved
	JRA-16846	Allow for Pluggable Decorators in JIRA		Resolved
	JRA-16843	The hide toggle on environment fields seems to have gone in 3.13.3		Resolved

	JRA-16782	Include connection pool size details in JBoss 4 installation notes		Resolved
	JRA-16780	On startup JIRA fails to search for Tables in the specified schema name		Resolved
	JRA-16762	Changing user properties dosn't invalidates properties cache		Resolved
	JRA-16755	Edit dashboard when shared with a project the user has no browse permission over fails		Resolved
	JRA-16726	File attachment having % in their file name are not allowed		Resolved
	JRA-16680	Running long Jelly scripts can fail		Resolved
	JRA-16611	Time Spent does not reflect the total time spent by issue and sub-tasks in HTML filter mail subscriptions		Resolved
	JRA-16579	User is unable to attach file having $ in filename, post creation of issue		Resolved
	JRA-16433	General Configuration XSS option help references non-public issue		Resolved
	JRA-16378	add comment to jira-application properties explaining weirdness with SimpleDateFormat's handling of yy versus yyyy		Resolved
	JRA-16367	Old Filter Sharing Screenshots still exist in JIRA 3.13.x documentation.		Resolved
	JRA-16223	Bulk move attachments remain in previous project folder		Resolved
	JRA-15921	Incorrect error message when validating worklog creation for closed issues		Resolved
	JRA-15795	Adding a new context to a custom field produces "[webwork.view.taglib.IteratorTag] Value is null! Returning an empty set"		Resolved
	JRA-15516	Links not showing in subscription filter		Resolved
	JRA-15475	Attachment lost with parallel bulk moves		Resolved
	JRA-14032	Subtask can be created when parent issue is closed		Resolved

JIRA 3.13.4 Upgrade Guide

Upgrading from JIRA 3.13.x to 3.13.4

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.12.x and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.13.3 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

2 April 2009

The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.3** in Standard, Professional and Enterprise editions. This point release includes over **85** bug fixes and improvements, including an important security fix — please see JIRA Security Advisory 2009-04-02 for details.

JIRA 3.13.3 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.13 yet?
Take a look at all the new features in the JIRA 3.13 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.13.3 Upgrade Guide.

Updates and Fixes in this Release

JIRA 3.13.3 includes the following updates and bug fixes:

JIRA Issues (93 issues)

Type	Key	Summary	Priority	Status
	JRA-18454	Bulk move of issue type creates duplicate entries in Change History		Resolved
	JRA-16752	Broke SearchProvider backwards compatibility in JIRA 3.13.3		Resolved
	JRA-16742	SOAP search methods are unbounded - this can lead to xml-rpc generating huge xml responses causing memory problems		Resolved
	JRA-16739	Broken bars in Project Statistics portlet		Resolved
	JRA-16677	JIRA build information not included in dummy XML responses to search filter requests which users do not have access to		Resolved
	JRA-16612	AttachmentNotFoundException does not report which attachment is missing		Resolved
	JRA-16608	Indent the XML and java code samples on Plugin documentation page.		Resolved
	JRA-16566	Jelly #inactivate section slightly confusing		Resolved
	JRA-16563	Improve documentation of catchemail parameter in createorcommenthandler		Resolved
	JRA-16562	Backport Jeds webwork1 bug fixes to JDK 1.4		Resolved
	JRA-16561	Take out URL encode from WebWork URL tag so that we get rid of the jessionid= problem		Resolved
	JRA-16549	Strange sort by fields		Resolved
	JRA-16546	Shared dashboard documentation does not explain how to remove a dashboard from the users favourites		Resolved
	JRA-16498	Version/s and Component/s not validated when updating an issue		Resolved
	JRA-16478	NullPointerException when entering a bad sorter/field parameter in the URL of the Printable view link		Resolved
	JRA-16462	Transition hovertip shows dash when there is no description		Resolved
	JRA-16449	Outdated / misleading documentation of Look & Feel section in Administration panel		Resolved
	JRA-16438	Cannot create attachement with "Subtask Creation" quickform		Resolved
	JRA-16429	Remote version not validated when creating new issue over SOAP		Resolved

	JRA-16419	Resolution selector in filter creation has no scrollbar in FF3		Resolved
	JRA-16402	Visio attached files do not open when clicked on		Resolved
	JRA-16384	unintentional use of font-size:0 in versiondescription.jsp		Resolved
	JRA-16383	Fix header injection vulnerabilities		Resolved
	JRA-16356	Date Picker fields won't "hide" on Issue Navigator page		Resolved
	JRA-16338	The Windows installer PermGen memory settings are lower than for other standalone releases.		Resolved
	JRA-16326	Create Comment Function fails when a workflow transition is invoked by a non logged in user		Resolved
	JRA-16320	There is no way to i18n some sort of plugin modules.		Resolved
	JRA-16264	Transforming wikimarkup in textarea into HTML (Email Notifications)		Resolved
	JRA-16239	A message "java.lang.IllegalArgumentException: fieldName must not be null" appears in the log when indexing language is French		Resolved
	JRA-16230	Plugin Servlets are not recreated after importing configuraton		Resolved
	JRA-16224	Environment field showing on issue summary when it's not on the View screen		Resolved
	JRA-16207	The "Surviving Connection Closures" page on Confluence still includes autoReconnect=true in the example MySQL configuration		Resolved
	JRA-16199	Plugins that index Link information can end up with stale link information in the Lucene Index.		Resolved
	JRA-16197	Time Tracking Report - displaying issue with Key ID's		Resolved
	JRA-16195	Support Request feature improvement		Resolved
	JRA-16183	NullPointerException fetching mail with CreateOrCommentHandler		Resolved
	JRA-16176	When email has an invalid address the mail handlers can throw a MessageException		Resolved
	JRA-16170	The javascript popup calendar has wrong short month names for Finnish		Resolved
	JRA-16169	Internationalisation to dutch		Resolved
	JRA-16159	how to change the german translation?		Resolved
	JRA-16156	Jelly tag AddIssueSecurityLevel ignores the provided description and creates a "tagName description" description		Resolved
	JRA-16149	No localisation for description on page fixforversion		Resolved
	JRA-16146	Inconsistent HTML under "Summary"		Resolved
	JRA-16135	Manage Versions page inconsistent across browsers		Resolved
	JRA-16126	JIRA 3.13.2 has shipped with the incorrect version of the crowd-ehcache.xml file in WEB-IN/classes for Crowd 1.5.x versions.		Resolved
	JRA-16124	Potential bug in Deleting a User Account FAQ		

				Resolved
	JRA-16111	Emails containing an issue key that has been moved result in new issues being created.		Resolved
	JRA-16107	German Translation Error in Manage Project Role Membership for Project page		Resolved
	JRA-16097	JIRA system info page does not show time zone in action		Resolved
	JRA-16072	DWR has a XSS security hole in it		Resolved
	JRA-16052	crashes on non-numerical input in isssue type migration		Resolved
	JRA-16034	"Action 'com.atlassian.jira.web.action.admin.workflow.ViewWorkflowSteps' could not be instantiated" when trying to draft workflow with ampersand in its name		Resolved
	JRA-16028	Quick Search excludes Environment field		Resolved
	JRA-16010	XML output from SearchRequest contains XML entities valid only in XML 1.1		Resolved
	JRA-16007	Fix version is not modified after a move depending on permissions		Resolved
	JRA-16003	Base URL in Trusted Applications page accepts illegal characters		Resolved
	JRA-16002	Auto-generated hyperlinks are broken if they contain more than one issue number		Resolved
	JRA-15998	The Search Query Syntax does not document the Escaping Special characters anymore		Closed
	JRA-15915	Missing French translations on 500 error page		Resolved
	JRA-15911	Cannot revoke global permissions from non existent groups		Resolved
	JRA-15855	Confusing error message in Edit Groups when no group is selected		Resolved
	JRA-15847	On access /si and /sr directories NPE is produced		Resolved
	JRA-15845	The colour picker only gives me one chance to select a colour		Resolved
	JRA-15749	German Translation regression in JIRA 3.13		Resolved
	JRA-15745	Some words are not translated		Resolved
	JRA-15705	wrong german translation "Fest für:"		Resolved
	JRA-15701	Put "JIRA lock up" warning message on the Indexing page		Resolved
	JRA-15641	Date Time CF picker fails validation for (at least) Japanese		Resolved
	JRA-15526	jsessionid populated in URL causing NumberFormatException		Resolved
	JRA-15504	Change button prompt from Edit to Update		Resolved
	JRA-15477	When publishing draft workflow, default name is not provided		Resolved
	JRA-15443	When mouse is over the logo in the header the mouse icon does not change to a hand in IE 6 like		

		it does in Firefox		Resolved
	JRA-15369	The 2D Statistics Portlet does not align itself vertically correctly - it adds an extra 5 pixels at the top and bottom of itself.		Resolved
	JRA-15322	Invalid email address is created when the users have an email address as their username during the CSV Import		Resolved
	JRA-15262	Windows installer doesn't allow to install JIRA service as windows service on Windows 2008		Resolved
	JRA-15063	Assignable permission given to User CF value causes errors in logs		Resolved
	JRA-14925	Make the warning more prominent that attachments are not backed up		Resolved
	JRA-14848	Zero and Eight difficult to distinguish in Internet Explorer on resolved "strike-through" issue numbers		Resolved
	JRA-14713	Use divs instead of tables for bar graphs so that they appear on printed pages properly		Resolved
	JRA-14430	Document the "Remember my login on this computer" tick box on the login page		Resolved
	JRA-14214	Office 2007 attachments (open document format files) download as ZIP files on some browsers		Resolved
	JRA-13996	"notifyusers=true" handler parameter is not interpreted correctly		Resolved
	JRA-13685	JIRA should better handle errors return from Crowd (notificaton messages)		Resolved
	JRA-13620	Custom field defaults are not applied when issue created via XML-RPC		Resolved
	JRA-13608	When downloading attachment with spaces in file name, JIRA replaces spaces to "+"		Resolved
	JRA-13157	Renaming a project role leaves the old name to database		Resolved
	JRA-12165	Unclear error message when bulk moving issues whose reporter cannot create issues		Resolved
	JRA-11693	SOAP: addAttachmentsToIssue runs out of memory when adding attachments of 1.5 MB or larger		Resolved
	JRA-9828	JIRA runs out of heap space and throws OutOfMemoryError on bulk operations		Resolved
	JRA-9339	Manage Attachments link leads to "this issue no longer exists" error intermittently.		Resolved
	JRA-8684	Clarify in documentation what "Remember my login on this computer" means; e.g. user stays logged in, but filters timeout when login (session) doesn't		Resolved
	JRA-8489	View Issue take a long time (slow) after search returning lots of issues		Resolved
	JRA-6929	Create a language pack for English (American)		Resolved

JIRA 3.13.3 Upgrade Guide

Upgrading from JIRA 3.13.2 to 3.13.3

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.12 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.13.2 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

9 December 2008

The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.2** in Standard, Professional and Enterprise editions. This point release includes over 45 bug fixes and improvements, including an important security fix — please see JIRA Security Advisory 2008-12-09 for details.

JIRA 3.13.2 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.13 yet?
Take a look at all the new features in the JIRA 3.13 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.13.2 Upgrade Guide.

Updates and Fixes in this Release

JIRA 3.13.2 includes the following updates and bug fixes:

JIRA Issues (53 issues)

Type	Key	Summary	Priority	Status
	JRA-20796	Error when editing group condition to execute a transition		Resolved
	JRA-17019	Attachments in E-mail not attached to issue on "Issue Creation from Email" or "Issue Update from Email"		Resolved
	JRA-16436	Bugzilla Importer documentation needs to be updated for 3.13.1		Resolved
	JRA-16201	Menu Item has a typo - Defining 'Isdownsue Type' field values		Resolved
	JRA-16200	Link on Setup Wizard page is broken		Resolved
	JRA-16081	Link to Lucene Query Parser Syntax doc is broken on Search Query Syntax page		Resolved
	JRA-16036	import / export page needs to more clearly specify where the backup file must be located		Resolved
	JRA-16032	Group Role Actor permission checks take a long time with many groups in the system		Resolved
	JRA-15997	wrong UTF-8 encoding in dashboard page title		Resolved
	JRA-15994	Issue Type select list is blank when a specific project is selected		Resolved
	JRA-15954	IMAP message handling produces issues with no description		Resolved
	JRA-15949	Issue created event for a sub-task should pass through the id of the parent issue		Resolved
	JRA-15943	Importing a backup while specifying a new index directory still deletes the old one		Resolved
	JRA-15906	HTML tags in project description are not rendered		Resolved
	JRA-15890	Single apostrophe in a group name causes javascript error in Group Picker		Resolved

	JRA-15887	During version merge an affects version or fix for version will be set even if it is not required		Resolved
	JRA-15884	Error when installing JIRA service manually in Windows 2008		Resolved
	JRA-15879	'ConcurrentModificationException' can be thrown when loading Jira services.		Resolved
	JRA-15878	Standalone service installer does not set the 'org.apache.jasper.runtime.BodyContentImpl.LIMIT_BUFFER' by default.		Resolved
	JRA-15876	Issue icons with absolute URL is prepended with context path in Issue Navigator XML		Resolved
	JRA-15858	Change History Items in a subtask can be duplicated on move to another project.		Resolved
	JRA-15843	Cannot create issues using a custom workflow		Resolved
	JRA-15837	"Caching" issue in Group Browser page		Resolved
	JRA-15825	Multiple project import from bugzilla fails		Resolved
	JRA-15824	'Finish' buttons on wizards are not internationalised		Resolved
	JRA-15823	Move Issue fails to create change history items for values not in target field configuration scheme		Resolved
	JRA-15821	Search description breaks when filtered by reporter group		Resolved
	JRA-15810	Clicking cancel on the change issue type scheme issue migration scheme leads to a blank page		Resolved
	JRA-15804	Index path is not validated when importing data into a new JIRA instance		Resolved
	JRA-15793	Changing Issue Type Sceen Sheme Fails With German Language		Resolved
	JRA-15775	Data added to a backup by JIRA related to FishEye caused breakages with JIRA		Resolved
	JRA-15770	NPE when editing a filter shared with a group the user does not belong to		Resolved
	JRA-15765	XML import from JIRA 3.11 to 3.13 failing on windows		Resolved
	JRA-15753	"The string "--" is not permitted within comments" error when restoring JIRA 3.13 backup		Resolved
	JRA-15744	Missing group causes portlets to break with stacktrace		Resolved
	JRA-15717	bulk parameter for mail handlers checks Auto-Submitted headers as well		Resolved
	JRA-15709	AssignToLeadFunction shouldn't log informational message at WARN level		Resolved
	JRA-15683	No apparent order to Issue Type Schemes when in 'Choose Issue Type Scheme' view in creating a new project		Resolved
	JRA-15670	attachment handling broken for Outlook 2007		Resolved
	JRA-15658	Empty Content-Encoding in SOAP requests when using gzip Accept-Encoding in request		Resolved
	JRA-15643	NullPointerException when editing an existing Permission Condition or Permission Validator		Resolved

	JRA-15642	Footer becomes part of content on Browse Project Roles for User page		Resolved
	JRA-15632	Allow the user to input a different port other than POP3 110		Resolved
	JRA-15622	Publish Draft Workflow screen contains very confusing text.		Resolved
	JRA-15561	Recognise delivery status messages better		Resolved
	JRA-15551	Editing a comment added by a deleted user generates a bad notification email		Resolved
	JRA-15440	jndi-jdbc jndi-server-name directions in entityengine.xml is not correct for jboss and external database		Resolved
	JRA-15325	Add "Auto-submitted" header to all email notifications to prevent "Out Of Office" messages		Resolved
	JRA-15205	Duplicate Issue Keys can be created		Resolved
	JRA-14877	Deleting a link changes the "updated date" field, but it does not reindex lucene.		Resolved
	JRA-13590	Add Mail Server Name and Id to all logging from MailFetcherService		Resolved
	JRA-12786	filter subscriptions pretend to work happily even when there is no configured mail server		Resolved
	JRA-9267	Memory leak in Jelly Runner while using AddComment tags		Resolved

JIRA 3.13.2 Upgrade Guide

Upgrading from JIRA 3.13.1 to 3.13.2

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.12 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.13.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

29 October 2008

The Atlassian JIRA team is proud to announce the release of **JIRA 3.13.1** in Standard, Professional and Enterprise editions. This point release includes over 35 bug fixes and improvements, including important security fixes — please see JIRA Security Advisory 2008-10-29 for details.

JIRA 3.13.1 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.13 yet?
Take a look at all the new features in the JIRA 3.13 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.13.1 Upgrade Guide.

Updates and Fixes in this Release

JIRA 3.13.1 includes the following updates and bug fixes:

JIRA Issues (43 issues)				
Type	Key	Summary	Priority	Status
	JRA-15748	Incorrect info displayed in Project Lead lists in JIRA deployed in Resin 3.x		Resolved
	JRA-15733	XSS bug on ViewProfile page		Resolved
	JRA-15718	JiraStartupLogger fails if there are third party services and listeners		Resolved
	JRA-15707	Return URL is not HTML escaped		Resolved
	JRA-15685	Spelling mistake of russian JIRA Web interface		Resolved
	JRA-15660	"jira.option.bulk.send.notifications" property is not used in JIRA		Resolved
	JRA-15653	Add user to Issue Security Level: misprint in error message		Resolved
	JRA-15648	JIRA source release does not find certain JARS		Resolved
	JRA-15645	wrong german translation "Fest für:"		Resolved
	JRA-15624	JIRA is asking Crowd for a user called "unassigned".		Resolved
	JRA-15612	syntax errors in JIRA standalone start up scripts		Resolved
	JRA-15608	HTTPS connector in JIRA Standalone does not define the useBodyEncodingForURI="true" flag to avoid problems with UTF-8 characters in the request URL		Resolved
	JRA-15602	ForgotPassword page NullPointer exception if you dont provide a user name		Resolved
	JRA-15601	Javascript error on the bulk transition page		Resolved
	JRA-15590	UserManager cache not flushed on config import		Resolved
	JRA-15588	Improvement to the Issue Security Scheme docs		Resolved
	JRA-15586	Use yahoo-dom-event.js instead of three separate includes		Resolved
	JRA-15582	Mail Finger Print defaults to "delete mail" even if there are no fingers prints.		Resolved
	JRA-15580	MailHandler deletes message that should be ignored due to catchmail parameter		Resolved
	JRA-15578	Case of Unassigned is lowercase on the issue navigator		Resolved
	JRA-15573	The Admin Default Dashboard can not be configured on JIRA standard		Resolved
	JRA-15572	Configure Default Dashboard throws error when no projects are created		Resolved
	JRA-15570	Sort order is not saved with filter		Resolved
	JRA-15567	Attachment path does not appear in the "attachment" system field (IE8)		Resolved
	JRA-15555	The 'SavePortlet' action does not have an error view.		

				Resolved
	JRA-15536	Icons for issue types loaded via HTTP not displayed in the View Custom Fields screen		Resolved
	JRA-15535	JIRA Admin portlet causes errors if added to dashboard then admin permission removed		Resolved
	JRA-15523	DefaultOfBizDelegator.setValue(Object, SQLProcessor) uses java.util.Date instead of java.sql.Date due to bad import statement		Resolved
	JRA-15520	FishEye plugin 2.2 bundled in JIRA 3.13 reports itself as being version 2.1		Resolved
	JRA-15513	Update CreateOrCommentHandler doco to say that "project" parameter only refers to creating an issue		Resolved
	JRA-15510	{1} on tooltip to move sub-task		Resolved
	JRA-15506	Incorrect Dutch translation of "Close Issue"		Resolved
	JRA-15502	Extra underscore between issue type icon and description in notification e-mails		Resolved
	JRA-15501	Link on Assigned to Me portlet uses a different sort order than the portlet itself		Resolved
	JRA-15488	Shows incorrect time (zone) when subscribing to filter		Resolved
	JRA-15482	EdituserProperties has a key length bug in it on DB2		Resolved
	JRA-15462	Adding user defaults password		Resolved
	JRA-15457	Ajax portlets make remote calls on log dashboard and not shown and not logged in		Resolved
	JRA-15421	Non thread safe use of DateFormat		Resolved
	JRA-15414	Warning on the main downgrade page should be repeated on the child pages.		Resolved
	JRA-15283	incorrect info on the Ent to Pro Downgrad page		Resolved
	JRA-15017	Add summary of modified or removed files to System Info		Resolved
	JRA-11030	Date Time Picker: time element returns the javascript format code (%R).		Resolved

JIRA 3.13.1 Upgrade Guide

Upgrading from JIRA 3.13 to 3.13.1

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.12 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Known Issues

IMAP message handling produces issues with no description

If your JIRA instance is set up to create issues and/or comments from e-mails that come from an IMAP mail box, you will need to deploy a patch to address a problem with issue creation (as described in JRA-15954). Please deploy the patch file attached to JRA-15954 (instructions for deploying the patch are contained in this comment of JRA-15954).

JIRA 3.12 Release Notes

Atlassian Software Systems is proud to present JIRA 3.12.

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

JIRA 3.12 provides a number of enhancements for the upcoming JIRA Studio. Because some of these enhancements may be of benefit to you, we have decided to provide them as a public release rather than making you wait until JIRA 4.0.

The major feature of this release is the ability to 'trust' Confluence. For people who use both JIRA and Confluence, the ability to configure a 'trust' relationship between the two will allow for a seamless end-user experience, e.g. the 'JIRA Issues' macro will now display exactly the same list of issues on a Confluence page that the user would see in the JIRA Issue Navigator. No longer is there a need to hard-code JIRA user names and passwords on a Confluence page. Note that you will need Confluence 2.7 (which is due for release this month) or later.

Also included in 3.12 is a new global permission, '**JIRA System Administrators**'. This will be particularly useful for organisations where the JIRA administrators are not necessarily the same people who are responsible for maintaining the file system and network environment. Granting the 'JIRA System Administrators' permission to only a controlled number of people will give your Windows or UNIX administrators greater peace of mind, while people with the 'JIRA Administrators' permission can enjoy full control over JIRA-specific administration.

Upgrading to JIRA 3.12 is free for all customers with active JIRA software maintenance as at 30 November 2007.

Highlights of JIRA 3.12:

- 'Trusted' Confluence
- 'JIRA System Administrators' permission
- FishEye plugin now bundled with JIRA
- Improvements to the Subversion plugin
- Improvements to the 'Project Statistics' and 'Filter Statistic' portlets
- New post function for workflows: 'Assign to Current User'
- Enhanced language support for searching
- Visual SourceSafe plugin
- Plus more than 100 other fixes and improvements

Upgrading to JIRA 3.12
JIRA 3.12 can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 3.12 Upgrade Guide.

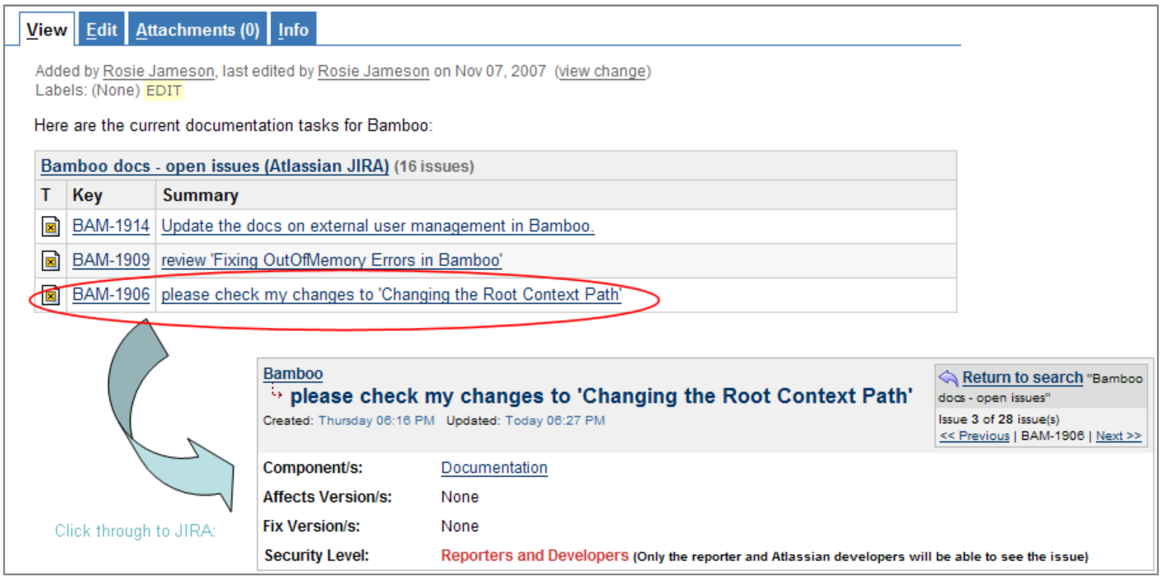
Highlights of JIRA 3.12

1

'Trusted' Confluence

For people who use both JIRA and Confluence, the ability to configure a 'trust' relationship between the two will allow for a seamless end-user experience, e.g. the 'JIRA Issues' macro will now display exactly the same list of issues on a Confluence page that the user would see in the JIRA Issue Navigator. No longer is there a need to hard-code JIRA user names and passwords on a Confluence page. (Note that you will need Confluence 2.7 or later.)

The 'JIRA Issues' macro in Confluence will now display (to appropriate users) issues that have a Security Level set:



^Top

2

'JIRA System Administrators' permission

A new global permission has been added to JIRA, to allow for separation of duties.

- People who are granted the new '**JIRA System Administrators**' permission can perform *all* of the administration functions in JIRA, including functions which could affect the application environment or network (e.g. data import/export, SMTP configuration, database connection).
- People with only the '**JIRA Administrators**' permission can now perform most administration functions (e.g. creating new JIRA users; creating projects), but not functions which could affect the application environment or network.

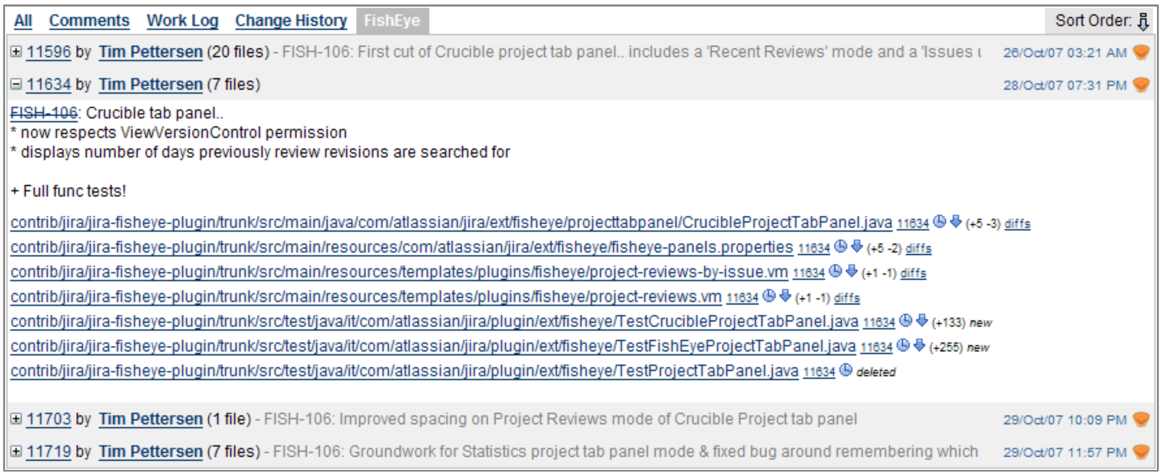
This will be useful for organisations which need to delegate JIRA-specific administration privileges to particular people, without granting them total system administration privileges.
Note that everyone who had the '**JIRA Administrators**' global permission before the upgrade will automatically receive the new '**JIRA System Administrators**' global permission during the upgrade. This will ensure that everyone can still perform the same functions they could previously.

^Top

3

FishEye plugin now bundled with JIRA

The FishEye plugin automatically detects JIRA issue-keys in your code commit messages. Within your JIRA issues and projects, relevant commit messages will be displayed along with links to the FishEye changesets and files — and (optionally) Crucible code reviews.



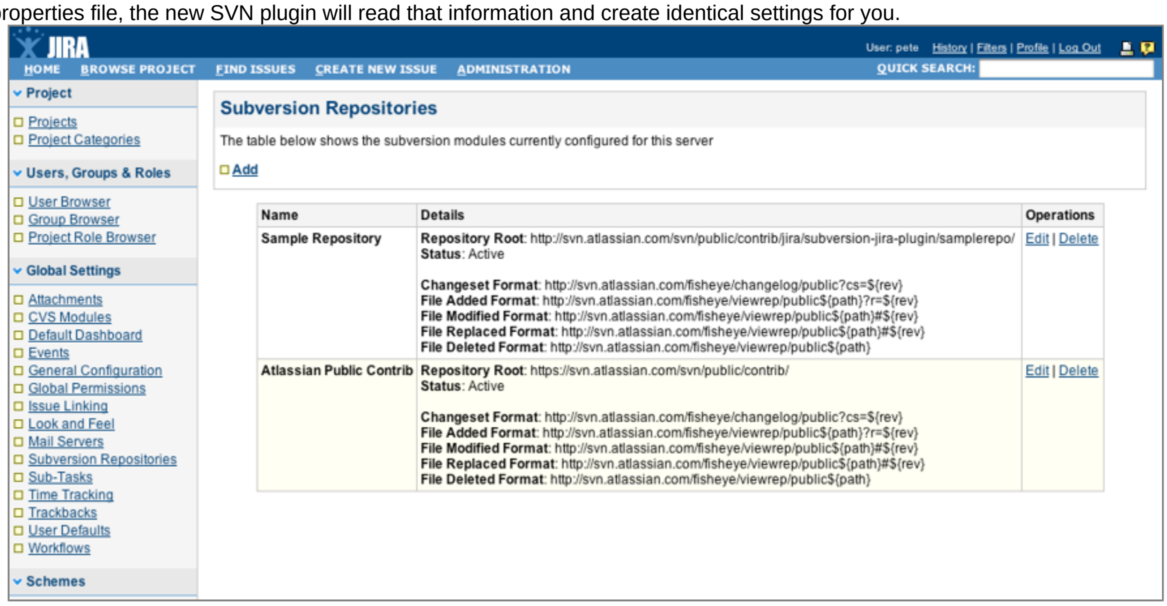
- Click here for a live example.

^Top

4

Improvements to the Subversion plugin

Using the Subversion plugin (available separately), it is now possible to configure Subversion repositories from within JIRA. No longer do you need to muck around with .properties files and bounce JIRA every time you make a change! If you have existing SVN repositories configured in your properties file, the new SVN plugin will read that information and create identical settings for you.



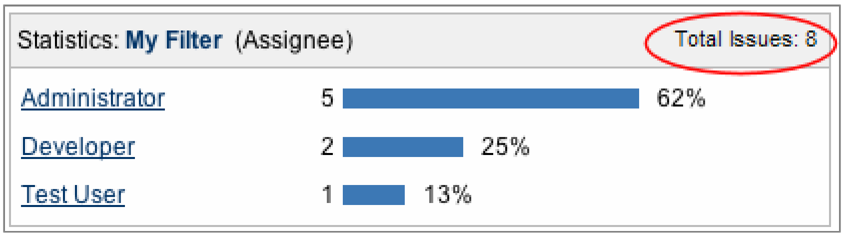
Click to enlarge

^Top

5

Improvements to the 'Project Statistics' and 'Filter Statistic' portlets

The Project Statistics portlet and the Filter Statistic portlet now show the total number of issues that match the filter, e.g.:



^Top

6

New post function for workflows: 'Assign to Current User'

With the new post function 'Assign to Current User', you can now automatically assign an issue to the logged-in user when the issue moves through a particular workflow transition.

This is useful if you need to assign an issue to the logged-in user under particular circumstances, but not give them full rights to assign issues. For example, on Atlassian's support system, when a support specialist clicks 'Start Investigating', the issue is automatically assigned to them — even if they don't have 'Assign Issues' permission.

^Top

7

Enhanced language support for searching

The range of available languages for JIRA search indexes has been expanded. This means that even more people around the world can now choose to have JIRA index their issue data in their native language.

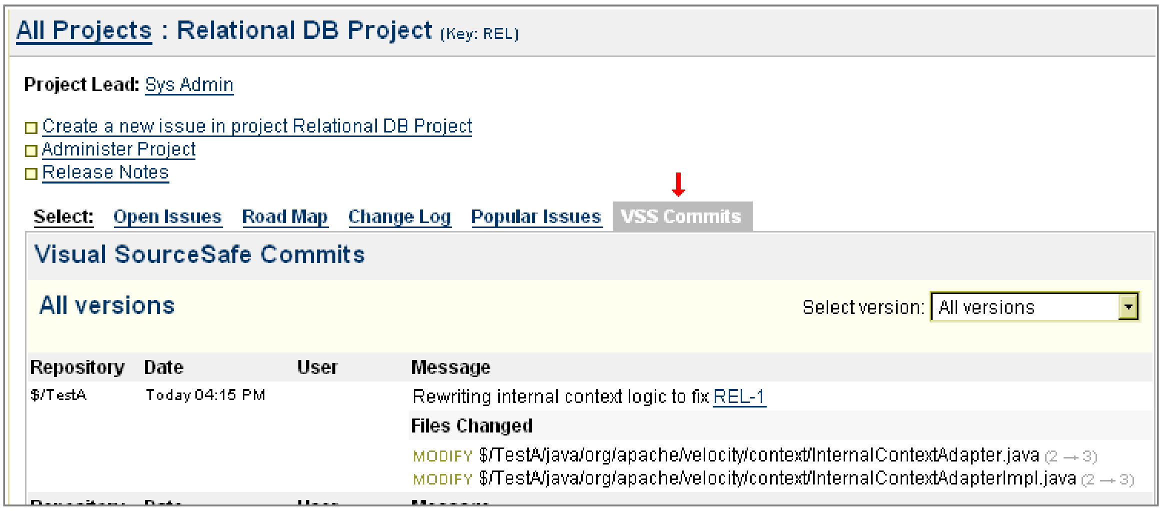
This provides more meaningful search results for end-users, because:

- 'stop' words (i.e. words that are deliberately ignored by the JIRA search engine, such as 'the') are now recognised in more non-English languages (Brazilian, Chinese, Czech, Greek, French, Dutch, Thai).
- 'stemming' (i.e. the derivation of related words, such as 'archived', from a stem such as 'archive) is now supported in French, Brazilian, German, French, Dutch, Russian and English. For example, if your index language is set to French:
  - a search for "marchera" will find "L'enfant a marché"; and
  - a search for "marché" will find "l'enfant marchera".
  ^Top

8

Visual SourceSafe plugin

The new VSS plugin displays Microsoft Visual SourceSafe commit information (along with the changed paths) related to JIRA issues, projects or project versions. This plugin is in **beta** and available for a separate download.



^Top

9

Plus more than 100 other fixes and improvements

JIRA Issues (120 issues)				
Key	**Type**	**Summary**	**Priority**	**Status**
JRA-4085		links in jira issues should be relative ratherr than use the BASE URL		Resolved
JRA-5819		Assign to current user workflow post-function		Resolved
JRA-5900		Error when trying to edit a group		Resolved
JRA-7136		Statistics are wrong when using a filter that searches through comments		Resolved
JRA-8457		Cannot administer my own profile: "The user does not exist. Please try another"		Resolved
JRA-8872		Provide a wrap option with the noformat markup		Resolved
JRA-9171		A timed out session causes stacktraces in half-completed actions		Resolved
JRA-10489		JIRA does not process multipart/alternative mails properly		Resolved
JRA-10508		Insecure "Remember my Login" cookie on https-sites		Resolved
JRA-10515		Adding CSV field to a Mutli User Custom Field causes error		Resolved
JRA-10546		Moving a subtask doesn't inherit the security level of its new parent		Resolved
JRA-10989		WIKI renderer preview does not display correctly		Resolved
JRA-11358		Make plugins configurable		Resolved
JRA-11396		Redundant JIRA Global Permission (Manage Group Filter Subscriptions) in Standard Edition		Resolved

JRA-11446	AccessLogFilter logs everything twice	Resolved
JRA-11767	Allow code and noformat sections in Wiki text to scroll horizontally	Resolved
JRA-11788	Filter window is too small when it opens	Resolved
JRA-11892	Support for Dutch Language	Resolved
JRA-12042	Typo in an RPC API parameter name	Resolved
JRA-12091	Issue's parentId not set on subtask deletion event	Resolved
JRA-12143	Improve doc on hiding fields	Resolved
JRA-12513	Allow NotificationType objects to be registered dynamically	Resolved
JRA-13040	Log critical system operations like reindexes	Resolved
JRA-13090	Multiple file upload fails when the sum of files size exceed the upload limit, even if each file is smaller than the limit.	Resolved
JRA-13128	Save position and size of Filter/History/Help pop up windows	Resolved
JRA-13155	Change renewal hyperlink to use new website redirects	Resolved
JRA-13187	Show Total in Caption of "Filter Statistics" portlet	Resolved
JRA-13188	Trailing + characters are truncuated from URLS in the Description / Environment / Comment fields.	Resolved
JRA-13205	Full content Word export from Issue navigator duplicates wiki style table	Resolved
JRA-13229	controlfooter.jsp always closes the html tr tag even when the nolabel param is set	Resolved
JRA-13231	JIRA installer ships with client JRE instead of server JRE	Resolved
JRA-13263	IssueNotFoundException is thrown right out to the user if a workflow action is taken on a deleted issue	Resolved
JRA-13282	'JIRA System Administrator' Permission	Resolved
JRA-13284	Problem in printing project portlet: red section displayed as white.	Resolved
JRA-13315	Non default permission types can cause Stack overflow if added to wrong permissions	Resolved
JRA-13386	Hide Log Work operation and Work Log tab if Time Tracking Field is hidden in Field Config	Resolved
JRA-13400	Remember me cookie issue with Glassfish; integrate latest Seraph into JIRA	Resolved
JRA-13402	Retain state of attachment comments when switching from single attachment to multiple	Resolved
JRA-13430	When invalid search term was entered in custom field, error message highlights Text Search Query: field.	Resolved
JRA-13436	Small French translation problem	Resolved
JRA-13442	Improve UI for component admin	Resolved

JRA-13465	Right border does is missing on Add Portlet screen on Safari	Resolved
JRA-13473	Double quotes allowed in transition name while editing a transition	Resolved
JRA-13475	Update issue field post function in Create Transition must be the first post function executed in order to actually set the issue field	Resolved
JRA-13509	Special character in group name causes permalink do not function properly	Resolved
JRA-13516	FieldLayoutSchemeImpl caching is not thread-safe	Resolved
JRA-13521	Need to add some unit tests for the bulk edit issue count limit in BulkEdit1.doValidate()	Resolved
JRA-13522	Need to improve the way the calendar-<locale>.js files are served	Resolved
JRA-13523	Multi user custom field cannot be used with the assignable user permission	Resolved
JRA-13542	Format the relative Today and Yesterday as per configured Day Format	Resolved
JRA-13553	Misleading permission violation message when attempting to edit a closed issue	Resolved
JRA-13554	Make Version Workload Report styled like Time Tracking report (nicer)	Resolved
JRA-13558	MailingListCompiler trying to send email with empty "To"	Resolved
JRA-13567	Improvement on Jelly tag documentation	Resolved
JRA-13572	in the 'Add Priority' form, should 'Status Color' be 'Priority Colour' ?	Resolved
JRA-13578	Typo in Issue Navigator in Slovak language	Resolved
JRA-13581	Replace hard-coded string in date pickers	Resolved
JRA-13592	Setting transport to SMTPS in JNDI mail resource is broken	Resolved
JRA-13597	Loading Event Listeners is not synchronized	Resolved
JRA-13598	The EmoticonRendererComponent uses the incorrect IconManager	Resolved
JRA-13613	Time Tracking Report's summary field should be linked	Resolved
JRA-13626	Renderer component does not work with profiling enabled	Resolved
JRA-13654	Allow AttachFile jelly tag to specify the created date for an attachment	Resolved
JRA-13655	The "attach" button in screenshot applet is not translated properly	Resolved
JRA-13656	Time Tracking Label for "Issue"	Resolved
JRA-13666	Missing i18n keys in notification scheme	Resolved
JRA-13673	Admin portlet can show null date for license expirery	Resolved
JRA-13677	The property field for JIRA's portlets and reports are not in order sequence	Resolved

JRA-13687		French Translation Incorrect "traitement"		Resolved
JRA-13699		Deleting a group does not check if there are any worklogs with the group restriction like it does for comments		Resolved
JRA-13703		getFieldsForEdit does not included "Reporter" field, "Due Date" field and "FixVersion" field		Resolved
JRA-13712		user value of JiraAuthenticationContext not set is SOAP service getIssue()		Resolved
JRA-13718		Update AttachFile jelly tag documentation		Resolved
JRA-13724		Caledar popup doesn't work in several languages		Resolved
JRA-13727		Trusted Applications: Support Authentication Context Passing from Confluence or another Application to JIRA		Resolved
JRA-13742		minor grammatical error in bulk move		Resolved
JRA-13744		IssueLevelSecurity permission check does not work with a DocumentIssueImpl if no security level has been set.		Resolved
JRA-13748		Clean View Issue page by moving (View) links for voters and watchers to link on actual value		Resolved
JRA-13750		Help link in browse projects page references version management page in the documentation		Resolved
JRA-13752		Issue Linking docs out of date		Resolved
JRA-13766		Deleting a version can leave gaps in the version sequence		Resolved
JRA-13784		Update Bugzilla import guide to ask users to run Bugzilla 'Sanity Check' tool first		Resolved
JRA-13792		Adding Greek support in Full-Text search		Resolved
JRA-13794		broken link on the 'Trackback Settings' screen		Resolved
JRA-13805		In quicksearch, issue type has higher priority than project key		Resolved
JRA-13809		Add more indexing and search languages		Resolved
JRA-13818		Username with # character breaks on "Assign to me" operation		Resolved
JRA-13823		Move mysql-guide-linux.html page to Confluence		Resolved
JRA-13824		identify entries in site.xml that have no label, and move to CAC where appropriate		Resolved
JRA-13829		Jelly Documentation - error in comment tags		Resolved
JRA-13840		Filter parameters panel on the the left should be collapsed by default when I come to Issue navigator from dashborad plugins		Resolved
JRA-13851		List of available colours for {color} tag in Wiki Style Renderer		Resolved
JRA-13853		No space above the Road Map portlet		Resolved
JRA-13856		Upgrade atlassian-extras for new license types.		Resolved
JRA-13881		Sub-tasks are visibile in Issue Finder while the Parent task is not		Resolved

JRA-13905		Unable to remove group at the Assign Groups to Project Role page if the group name has the double quote		Resolved
JRA-13906		Duplicate i18n-keys in the same language-files		Resolved
JRA-13910		Update the comment in jira-application.properties to indicate that a hyphen should not be used in the project key.		Resolved
JRA-13911		Projects portlet sometimes displays Components and Versions links and sometimes doesn't		Resolved
JRA-13916		"Manage Portal" screen is missing the default template info		Resolved
JRA-13920		Page title is incorrect when the user logs out		Resolved
JRA-13921		Resetting custom version picker field results in incorrect search results		Resolved
JRA-13932		Document [permlink]		Closed
JRA-13935		Anonymous reporter makes rss feeds throw NullPointerException		Resolved
JRA-13941		Add New Issue Type Scheme form does not validate name nicely		Resolved
JRA-13949		Custom Field Type: "Version Picker" - Scroll Bar for displaying List Not Working		Resolved
JRA-13952		Set up redirects for JIRA doc pages moved to Confluence		Resolved
JRA-13974		Review changes to Profiling documentation - new content on making Profiling permanent		Resolved
JRA-13977		Correct Jelly Tags documentation for new permissions in AddPermission		Resolved
JRA-13991		Translation for French and German breaks in the change password screen		Resolved
JRA-13994		Document that users importing from other systems such as via CSV should backup their data first		Resolved
JRA-13998		New german translation is "buggy" concerning Bulkchange		Resolved
JRA-14012		Authenticating security providers fails due to ClassLoader bugs		Resolved
JRA-14022		JIRA Tomcat 6.0 doco changes		Resolved
JRA-14130		charting plugin ignores text query term		Resolved
JRA-14138		User picker still shows user after being removed from all groups		Resolved
JRA-14278		Update documentation - PersistenceManager has to be disabled for Tomcat		Resolved
JRA-15199		Formatting of code sections of LDAP debugging documentation has gone awry		Resolved
JRA-15230		Typo on Downgrading JIRA doc		Resolved
JRA-15587		Link to Issue Type in 'What is an Issue?' page points to the incorrect anchor		Resolved

^Top

JIRA 3.12 Upgrade Guide

Upgrading from JIRA 3.11 to 3.12

Please follow the JIRA general upgrade instructions, plus note the following:

1. Everyone who had the '**JIRA Administrators'** global permission before the upgrade will automatically receive the new '**JIRA System Administrators**' global permission during the upgrade. This will ensure that everyone can still perform the same functions they could previously.
2. The following new Seraph property can be used to fix JRA-10508:

```
<!--  If this parameter is set to true, the cookie will never be set secure.  This is useful
if you're logging
              into JIRA via https, but want to browse JIRA over http.  This flag will ensure
that the remember me option
              works correctly. -->
        <init-param>
            <param-name>insecure.cookie</param-name>
            <param-value>true</param-value>
        </init-param>
```

3. Due to the Seraph upgrade, to fix JRA-10508 all users will be prompted to log in again. This will also affect users who have the 'Remember me' checkbox ticked.
4. If you are building JIRA from source, please note that Maven2 is now required for a build. This is because the JIRA Fisheye Plugin requires Maven2.
5. If you are using the JIRA Toolkit, it is recommended that you upgrade to the latest version in order to fix JRA-13553
6. Please note that the new Trusted Applications feature is not supported on Orion versions prior to 2.0.5. Also note that Resin2 has problems and you will need to update the Resin extra jars.
7. There is a new database table. Please see the following page for details

Upgrading from JIRA 3.10.2 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Using the Trusted Applications feature with Crowd

Please note that older versions of the Crowd client, (i.e. version 1.2.1 or earlier), can interfere with the correct operation of the Trusted Applications feature. If you are enabling Trusted Applications and using Crowd, please ensure that your Crowd client is **version 1.2.2 or later**.

JIRA 3.12 DB Schema Changes

The table below summarises the changes to the database schema. Please note, that if you have developed any custom utilities which query or modify the JIRA database directly (i.e. without using the JIRA API), please check whether the utilities need to be updated.

New Database Table Table - TRUSTEDAPP

The database table `trustedapp` has been added to schema support Trusted Applications:

It has the following columns:

Column Name	Type
id	numeric
applicationId	long-varchar
name	long-varchar
publicKey	very-long
ipMatch	very-long
urlMatch	very-long
timeout	numeric
created	date-time
createdBy	long-varchar
updated	date-time

updatedBy	long-varchar

The ID column is the primary key.

For a mapping of the above type to your particular database, please see the appropriate `fieldtype-*.xml` file in JIRA's `WEB-INF/classes/entitydefs/` directory.

JIRA 3.12.3 Release Notes

30 April 2008

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.12.3 Release Notes

The Atlassian JIRA team is proud to announce the release of **JIRA 3.12.3** in Standard, Professional and Enterprise editions. This point release includes over 40 bug fixes and improvements which can be viewed below. Click a specific issue to see details of the fix, and to download patches where relevant.

JIRA 3.12.3 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.12 yet?
Take a look at all the new features in the JIRA 3.12 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.12.3 Upgrade Guide.

Updates and Fixes in this Release

JIRA Issues (43 issues)

Type	Key	Summary	Assignee	Reporter	Priority	Status	Resolution	Created	Updated	Due
	JRA-15587	Link to Issue Type in 'What is an Issue?' page points to the incorrect anchor	Andrew Lui [Atlassian]	Andrew Lui [Atlassian]		Resolved	Fixed	Sep 11, 2008	Sep 11, 2008	
	JRA-15230	Typo on Downgrading JIRA doc	Andrew Lui [Atlassian]	Jeff McMillan [Atlassian]		Resolved	Fixed	Jul 14, 2008	Jul 17, 2008	
	JRA-15199	Formatting of code sections of LDAP debugging documentation has gone awry	Andrew Lui [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Jul 07, 2008	Sep 14, 2008	
	JRA-15153	Improve Upgrading JIRA Safely page	Andrew Lui [Atlassian]	Andrew Lui [Atlassian]		Resolved	Fixed	Jun 24, 2008	Jun 26, 2008	
	JRA-15138	Trusted Application "URL Paths to Allow" documentation lists incorrect URL	Andrew Lui [Atlassian]	Jed Wesley-Smith [Atlassian]		Resolved	Fixed	Jun 19, 2008	Jun 25, 2008	
	JRA-15106	<head> tag in the summary causes the HTML page to display wrongly	Unassigned	Timothy Chin [Atlassian]		Resolved	Fixed	Jun 16, 2008	Jun 18, 2008	
	JRA-14827	$comment.roleLevel is not a valid reference errors in logs	Michael Tokar [Atlassian]	Jed Wesley-Smith [Atlassian]		Resolved	Fixed	Apr 17, 2008	Apr 18, 2008	
	JRA-14825	Extra note about installing JIRA on DB2 is needed.	Andrew Lui [Atlassian]	Bogdan Dziedzic [Atlassian]		Resolved	Fixed	Apr 17, 2008	Jun 11, 2008	
	JRA-14749	Start Watching Link is missing in the Italian language pack	Dushan Hanuska [Atlassian]	Terry [Atlassian]		Resolved	Fixed	Apr 03, 2008	Apr 18, 2008	
	JRA-14725	Issue Search Summary has Extra Line Break	Unassigned	Brenden Bain			Fixed	Mar 30,	Mar 31,	

		Under IE7.		[Atlassian]		Resolved		2008	2008	
	JRA-14692	Active statuses can be deleted via the URL	Dushan Hanuska [Atlassian]	Stafford Vaughan [CustomWare]		Resolved	Fixed	Mar 24, 2008	Mar 27, 2008	
	JRA-14686	Manual Backup Data to XML fails without warning when filename contains a colon character under WinXP.	Dushan Hanuska [Atlassian]	W. van Beelen		Resolved	Fixed	Mar 21, 2008	Mar 27, 2008	
	JRA-14685	version workload report shows a subtask that is resolved	Dushan Hanuska [Atlassian]	Danita Day		Resolved	Fixed	Mar 20, 2008	Jun 09, 2009	
	JRA-14684	Broken links in Resin 2 documentation	Ian Daniel [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Mar 20, 2008	Apr 21, 2008	
	JRA-14675	Minor errors/typos in documentation	Andrew Lui [Atlassian]	Margaret Votava		Resolved	Fixed	Mar 19, 2008	Jun 25, 2008	
	JRA-14671	Updated French and German Translations	Chris Mountford [Atlassian]	Chris Mountford [Atlassian]		Resolved	Fixed	Mar 18, 2008	Apr 16, 2008	
	JRA-14663	project role name not html escaped	Chris Mountford [Atlassian]	Chris Mountford [Atlassian]		Resolved	Fixed	Mar 18, 2008	Mar 18, 2008	
	JRA-14662	After successfully importing an XML the rendering breaks showing the next page	Michael Tokar [Atlassian]	Kay Nny Lee [Atlassian]		Resolved	Fixed	Mar 18, 2008	Mar 26, 2008	
	JRA-14656	Parent(default) field configuration has overridden setting in issue type field configuration	Michael Tokar [Atlassian]	Chai Ying Chan [Atlassian]		Resolved	Fixed	Mar 17, 2008	Mar 26, 2008	
	JRA-14612	Please update the URL inside JIRA pointing to www.atlassian.jp	Unassigned	Neeraj Jhanji		Resolved	Fixed	Mar 10, 2008	Mar 17, 2008	
	JRA-14594	AddPermission action needs validation on the permission field - throws NPE if not selected	Michael Tokar [Atlassian]	Peter White [Atlassian]		Resolved	Fixed	Mar 05, 2008	Mar 18, 2008	
	JRA-14591	java soap client returns a null for key after creating a remote issue	Timothy Chin [Atlassian]	Lance Selvidge		Resolved	Cannot Reproduce	Mar 05, 2008	Jun 30, 2010	
	JRA-14579	Using curly braces in the project's name cause to inability to add roadmap portlet to the personal dashboard	Dushan Hanuska [Atlassian]	Alexey Serba		Resolved	Fixed	Mar 03, 2008	Mar 28, 2008	
	JRA-14575	Screenshot link in the exported excel is redirecting to the security breach page	Michael Tokar [Atlassian]	Kay Nny Lee [Atlassian]		Resolved	Fixed	Mar 03, 2008	Apr 15, 2008	
	JRA-14514	Broken version and component links on issues: jsessionid added halfway through URL	Chris Mountford [Atlassian]	Jeff Turner [Atlassian]		Resolved	Fixed	Feb 24, 2008	May 07, 2008	
	JRA-14507	Random password generation for jira:CreateUser	Andrew Lui [Atlassian]	Nicolas Dumazet		Resolved	Fixed	Feb 24, 2008	Jun 11, 2008	
	JRA-14506	Failed Jelly Run does not escape HTML from the Jelly INPUT	Chris Mountford [Atlassian]	Nicolas Dumazet		Resolved	Fixed	Feb 24, 2008	Mar 06, 2008	
	JRA-14495	Cannot remove user from group that starts with number.	Andreas Knecht [Atlassian]	Brenden Bain [Atlassian]		Resolved	Fixed	Feb 21, 2008	Jul 01, 2008	
	JRA-14474	When viewing issues, JIRA hangs for 30s, then renders page without stylesheets when using GZip	Unassigned	Jeff Turner [Atlassian]		Resolved	Fixed	Feb 18, 2008	May 28, 2008	

		compression, mod_jk / mod_proxy_ajp and SSL								
	JRA-14405	"Edit Comment" notification displays user id / name instead of fullName	Michael Tokar [Atlassian]	Alexey Serba		Resolved	Fixed	Feb 06, 2008	Feb 18, 2008	
	JRA-14404	Backup's Cancel button generates Error HTTP Status 404	Michael Tokar [Atlassian]	Jaroslaw Lekston		Resolved	Fixed	Feb 06, 2008	Feb 12, 2008	
	JRA-14392	Notification Fails Because of Invalid Custom Field	Unassigned	Timothy Chin [Atlassian]		Resolved	Fixed	Feb 03, 2008	Feb 10, 2008	
	JRA-14382	Misleading "Invalid certificate" error message when trusted apps IP address not allowed	Jed Wesley-Smith [Atlassian]	Jeff Turner [Atlassian]		Resolved	Fixed	Jan 31, 2008	May 19, 2008	
	JRA-14338	Bulk Delete does not respect email notification sending for sub-tasks	Andreas Knecht [Atlassian]	Nick Menere [Atlassian]		Resolved	Fixed	Jan 23, 2008	Feb 11, 2008	
	JRA-14009	NullPointerException thrown when deleting an Issue Type which was configured for a non-existent Custom Field	Unassigned	Michael Tokar [Atlassian]		Resolved	Fixed	Nov 21, 2007	Dec 06, 2010	
	JRA-13939	Printable link for pages may double escape urls	Andreas Knecht [Atlassian]	Nick Menere [Atlassian]		Resolved	Fixed	Nov 11, 2007	Feb 20, 2008	
	JRA-13936	IssueNavigator produces harmless but incorrect urls	Unassigned	Nick Menere [Atlassian]		Resolved	Fixed	Nov 11, 2007	Feb 10, 2008	
	JRA-13635	Calendar date picker can't be used with Hungarian locale	Dushan Hanuska [Atlassian]	Zoltán Mezei		Resolved	Fixed	Sep 28, 2007	Feb 20, 2008	
	JRA-13591	Email should be forwarded if we can't parse it	Unassigned	Nick Menere [Atlassian]		Resolved	Fixed	Sep 23, 2007	Feb 13, 2008	
	JRA-13506	error sending e-mail to persons without an emailaddress	Dushan Hanuska [Atlassian]	Ronald Spierenburg		Resolved	Fixed	Sep 10, 2007	Mar 31, 2008	
	JRA-13093	When service deleted the parameters of this service not deleted (in database)	Dushan Hanuska [Atlassian]	Manuel AUGUSTO		Resolved	Fixed	Jul 13, 2007	Mar 27, 2008	
	JRA-10949	Email prompt shown when email is hidden	Michael Tokar [Atlassian]	Neal Applebaum		Resolved	Fixed	Aug 24, 2006	Feb 18, 2008	
	JRA-10337	more than one "Permission Scheme" being set when use soap	Andreas Knecht [Atlassian]	scud		Resolved	Fixed	Jun 02, 2006	Feb 25, 2008	

JIRA 3.12.3 Upgrade Guide

Upgrading from JIRA 3.12.2 to 3.12.3

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.11 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.12.2 Release Notes

21 February 2008

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.12.2 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.12.2 in Standard, Professional and Enterprise editions. This point release includes over 30 bug fixes and improvements, including important security fixes: please see JIRA Security Advisory 2008-02-21 for details. Additionally, the FishEye plugin now supports **trusted applications** for increased security over the existing username and password authentication. Read more about using the FishEye plugin.

JIRA 3.12.2 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.12 yet?
Take a look at all the new features in the JIRA 3.12 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.12.2 Upgrade Guide.

Updates and Fixes in this Release

JIRA 3.12.2 includes the following updates and bug fixes:

JIRA Issues (32 issues)

Type	Key	Summary	Assignee	Reporter	Priority	Status	Resolution	Created	Updated	D
	JRA-15587	Link to Issue Type in 'What is an Issue?' page points to the incorrect anchor	Andrew Lui [Atlassian]	Andrew Lui [Atlassian]		Resolved	Fixed	Sep 11, 2008	Sep 11, 2008	
	JRA-15230	Typo on Downgrading JIRA doc	Andrew Lui [Atlassian]	Jeff McMillan [Atlassian]		Resolved	Fixed	Jul 14, 2008	Jul 17, 2008	
	JRA-15199	Formatting of code sections of LDAP debugging documentation has gone awry	Andrew Lui [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Jul 07, 2008	Sep 14, 2008	
	JRA-14802	Installer Documentation for Mac OSX	Andrew Lui [Atlassian]	Matt Hodges [Atlassian]		Closed	Fixed	Apr 15, 2008	Apr 22, 2008	
	JRA-14764	Extra note needed about configuring trust between JIRA and a clustered Confluence	Andrew Lui [Atlassian]	Bogdan Dziedzic [Atlassian]		Resolved	Fixed	Apr 07, 2008	Apr 24, 2008	
	JRA-14584	No option to DEBUG, when configuring LDAP from GUI in JIRA EE	Andrew Lui [Atlassian]	Bogdan Dziedzic [Atlassian]		Resolved	Fixed	Mar 04, 2008	Apr 06, 2008	
	JRA-14512	recommend that the default user which invokes JIRA not be a system account such as root	Andrew Lui [Atlassian]	Peter White [Atlassian]		Resolved	Fixed	Feb 24, 2008	Feb 27, 2008	
	JRA-14414	Trusted authentication doesn't work for Confluence users with uppercase usernames	Jed Wesley-Smith [Atlassian]	Matt Ryall [Atlassian]		Resolved	Fixed	Feb 07, 2008	Feb 13, 2008	
	JRA-14413	TrustedApplicationFilter does not refresh TrustedApplicationsManager dependency when data imported	Jed Wesley-Smith [Atlassian]	Dusan Hornik [Atlassian]		Resolved	Fixed	Feb 06, 2008	Feb 10, 2008	
	JRA-14384	Project name that contains double-quote is not properly escaped on Issue Navigator page	Dushan Hanuska [Atlassian]	Igor Sereda		Resolved	Fixed	Feb 01, 2008	Feb 04, 2008	
	JRA-14351	Tweak JIRA startup so that starting/started is clearly marked	Brad Baker [Atlassian]	Brad Baker [Atlassian]		Resolved	Fixed	Jan 25, 2008	Jan 29, 2008	
		Default issue type is not	Dushan	Eddie Kua				Jan 21,	Oct 23,	

	JRA-14318	being pickup	Hanuska [Atlassian]	[Atlassian]		Resolved	Fixed	2008	2009
	JRA-14308	JavaScript error on IE when selecting reporter via sub-task's quick create form	Kay Nny Lee [Atlassian]	Riikka Lemminkäinen		Resolved	Fixed	Jan 18, 2008	Feb 05, 2008
	JRA-14295	NullPointerException when clicking on email filter subscription edit link when not logged into JIRA	Dushan Hanuska [Atlassian]	Dushan Hanuska [Atlassian]		Resolved	Not a bug	Jan 16, 2008	Jan 23, 2008
	JRA-14290	Make JIRA SOAP client work against jira.atlassian.com	Brad Baker [Atlassian]	Brad Baker [Atlassian]		Resolved	Fixed	Jan 15, 2008	Jan 22, 2008
	JRA-14269	NullPointerException when creating an issue with poorly-configured workflow using AssignToLeadDeveloper function	Unassigned	Masha Khokhlova		Resolved	Fixed	Jan 11, 2008	Jun 18, 2008
	JRA-14244	UI bug: text wrongly aligned in workflow editor	Andreas Knecht [Atlassian]	Jeff Turner [Atlassian]		Resolved	Fixed	Jan 09, 2008	Jan 10, 2008
	JRA-14237	NullPointerException when moving portlet on the dashboard page	Dushan Hanuska [Atlassian]	Dushan Hanuska [Atlassian]		Resolved	Fixed	Jan 08, 2008	Feb 17, 2008
	JRA-14233	Filters link refreshes till out of page	Dushan Hanuska [Atlassian]	Timothy Chin [Atlassian]		Resolved	Fixed	Jan 08, 2008	Sep 11, 2008
	JRA-14226	The top navigation bars html is outside of the html body tag	Dylan Etkin [Atlassian]	Dylan Etkin [Atlassian]		Resolved	Fixed	Jan 06, 2008	Jan 06, 2008
	JRA-14215	Exception in user-picker on EACJ	Andreas Knecht [Atlassian]	Steve Smith [Atlassian]		Resolved	Fixed	Jan 03, 2008	Jan 07, 2008
	JRA-14187	Tomcat documentation should indicate PersistenceManager has to be disabled	Anton Mazkovoi [Atlassian]	Gili		Resolved	Fixed	Dec 27, 2007	Mar 27, 2008
	JRA-14183	Terrible error reporting when establishing trusted connections	Jed Wesley-Smith [Atlassian]	Jeff Turner [Atlassian]		Resolved	Fixed	Dec 25, 2007	Jan 09, 2008
	JRA-14178	Missing comment in email after bulk edit	Michael Tokar [Atlassian]	Dieter Wachters		Resolved	Fixed	Dec 21, 2007	Jan 14, 2008
	JRA-14174	Trackback Link Does Not Have a Base URL	Brad Baker [Atlassian]	Timothy Chin [Atlassian]		Resolved	Fixed	Dec 20, 2007	Jan 02, 2008
	JRA-14171	Add whether Crowd is present to the System Info page	Michael Tokar [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Dec 20, 2007	May 25, 2008
	JRA-14164	Jelly TransitionWorkflow tag in forEach loop sets wrong assignees	Michael Tokar [Atlassian]	Jeff Turner [Atlassian]		Resolved	Fixed	Dec 18, 2007	Jan 02, 2008
	JRA-14147	Delete notifications cause NPE	Brad Baker [Atlassian]	David Yu		Resolved	Fixed	Dec 13, 2007	Jan 02, 2008
	JRA-14106	Unrecognised icon for file extension (*.docx) and (*.xlsx)	Michael Tokar [Atlassian]	Chai Ying Chan [Atlassian]		Resolved	Fixed	Dec 06, 2007	Feb 25, 2008
	JRA-13940	url rewrite doesn not rewrite the sort part for datecreated, lastupdated and duedate	Dushan Hanuska [Atlassian]	Nick Menere [Atlassian]		Resolved	Fixed	Nov 11, 2007	Feb 19, 2008
	JRA-13728	Add a warning on the Time tracking page if the Log Work Issue operation is disabled	Michael Tokar [Atlassian]	Anton Mazkovoi [Atlassian]		Resolved	Fixed	Oct 10, 2007	Jan 07, 2008
	JRA-13577	Can't remove Anyone from jira-users global permission in JIRA 3.10.1 upgraded from earlier version	Dushan Hanuska [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Sep 20, 2007	Jan 25, 2008

JIRA 3.12.2 Upgrade Guide

Upgrading from JIRA 3.12.1 to 3.12.2

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.11 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.12.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

24 December 2007

JIRA 3.12.1 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.12.1 in Standard, Professional and Enterprise editions. This point release includes over 10 bug fixes and improvements, including important security fixes: please see JIRA Security Advisory 2007-12-24 for details.

JIRA 3.12.1 is of course free to all customers with active JIRA software maintenance.

Don't have JIRA 3.12 yet?
Take a look at all the new features in the JIRA 3.12 Release Notes and see what you are missing out on!

Download Latest Version

Upgrading from a Previous Version of JIRA

If you are upgrading, please read the JIRA 3.12.1 Upgrade Guide.

Updates and Fixes in this Release

JIRA 3.12.1 includes the following updates and bug fixes:

JIRA Issues (16 issues)

Type	Key	Summary	Assignee	Reporter	Priority	Status	Resolution	Created	Updated	Due
	JRA-15587	Link to Issue Type in 'What is an Issue?' page points to the incorrect anchor	Andrew Lui [Atlassian]	Andrew Lui [Atlassian]		Resolved	Fixed	Sep 11, 2008	Sep 11, 2008	
	JRA-15230	Typo on Downgrading JIRA doc	Andrew Lui [Atlassian]	Jeff McMillan [Atlassian]		Resolved	Fixed	Jul 14, 2008	Jul 17, 2008	
	JRA-15199	Formatting of code sections of LDAP debugging documentation has gone awry	Andrew Lui [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Jul 07, 2008	Sep 14, 2008	
	JRA-14467	Improvement on Tomcat 6.x, 5.5 documents	Andrew Lui [Atlassian]	Bogdan Dziedzic [Atlassian]		Resolved	Fixed	Feb 17, 2008	Feb 20, 2008	
	JRA-14394	MySQL docs page should highlight a need of setting up the JIRA db with support of unicode	Andrew Lui [Atlassian]	Bogdan Dziedzic [Atlassian]		Resolved	Fixed	Feb 03, 2008	Feb 17, 2008	
	JRA-14347	MSSQL 2005 Documentation is confusing customers	Andrew Lui [Atlassian]	Brenden Bain [Atlassian]		Resolved	Fixed	Jan 24, 2008	Dec 08, 2009	
	JRA-14346	Emphasize that JIRA Standalone can be re-configured to use a "real" database	Andrew Lui [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Jan 24, 2008	Jan 28, 2008	
		NumberFormatException occurs while trying to set	Jed	Jed				Dec 13,	Jan 02,	

	JRA-14148	up a trusted application if the	Wesley-Smith [Atlassian]	Wesley-Smith [Atlassian]		Resolved	Fixed	2007	2008	
	JRA-14107	[~username] points always to own profile	Michael Tokar [Atlassian]	Patricia Montag		Resolved	Fixed	Dec 07, 2007	Feb 15, 2008	
	JRA-14105	XSS on CreateIssue post	Michael Tokar [Atlassian]	Anton Mazkovoi [Atlassian]		Resolved	Fixed	Dec 06, 2007	Feb 28, 2008	
	JRA-14086	Setup page is accessable after JIRA instance has been setup already	Michael Tokar [Atlassian]	Michael Tokar [Atlassian]		Resolved	Fixed	Dec 04, 2007	Dec 23, 2007	
	JRA-13999	Anyone can delete a filter which is shared with them.	Michael Tokar [Atlassian]	Emily Stumpf [Atlassian]		Resolved	Fixed	Nov 20, 2007	Dec 23, 2007	
	JRA-13842	Add "stay in touch" links to footer	Michael Tokar [Atlassian]	Jonathan Nolen [Atlassian]		Resolved	Fixed	Oct 29, 2007	Dec 11, 2007	
	JRA-13821	RSS feeds from JIRA are displayed in Internet Explorer 7 as raw XML	Michael Tokar [Atlassian]	Ian Daniel [Atlassian]		Resolved	Fixed	Oct 25, 2007	Feb 14, 2008	
	JRA-13788	User name AutoPicker renders a "FALSE" and pushbuttons disappear.	Michael Tokar [Atlassian]	Shari Terry		Resolved	Fixed	Oct 19, 2007	Apr 03, 2009	
	JRA-13032	Improvement on JBoss 4 document	Andrew Lui [Atlassian]	Eddie Kua [Atlassian]		Resolved	Fixed	Jul 06, 2007	Jan 28, 2008	

JIRA 3.12.1 Upgrade Guide

Upgrading from JIRA 3.12 to 3.12.1

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.11 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.11 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is delighted to present JIRA 3.11.

Upgrading to JIRA 3.11 is free for all customers with active JIRA software maintenance as at 24th September 2007.This release focuses on time-tracking. Time-tracking data (that is, the estimated and actual time spent on an issue) now includes the issue's sub-tasks. The aggregated time-tracking data is displayed both within individual 'parent' issues and in the Issue Navigator, so it can be easily reported on, exported to Excel, etc.
Being able to track your project's Road Map (scheduled issues) has long been a useful feature of JIRA. But how do you manage programs of multiple, related projects? In JIRA 3.11, the new Road Map portlet shows upcoming milestones across multiple projects of your choice.

Upgrading to JIRA 3.11
JIRA 3.11 can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 3.11 Upgrade Guide.

Thank you for your feedback:

31 new feature and improvement requests implemented
223 votes fulfilled

Your votes and issues help us keep improving our products, and are much appreciated.

Highlights of JIRA 3.11:

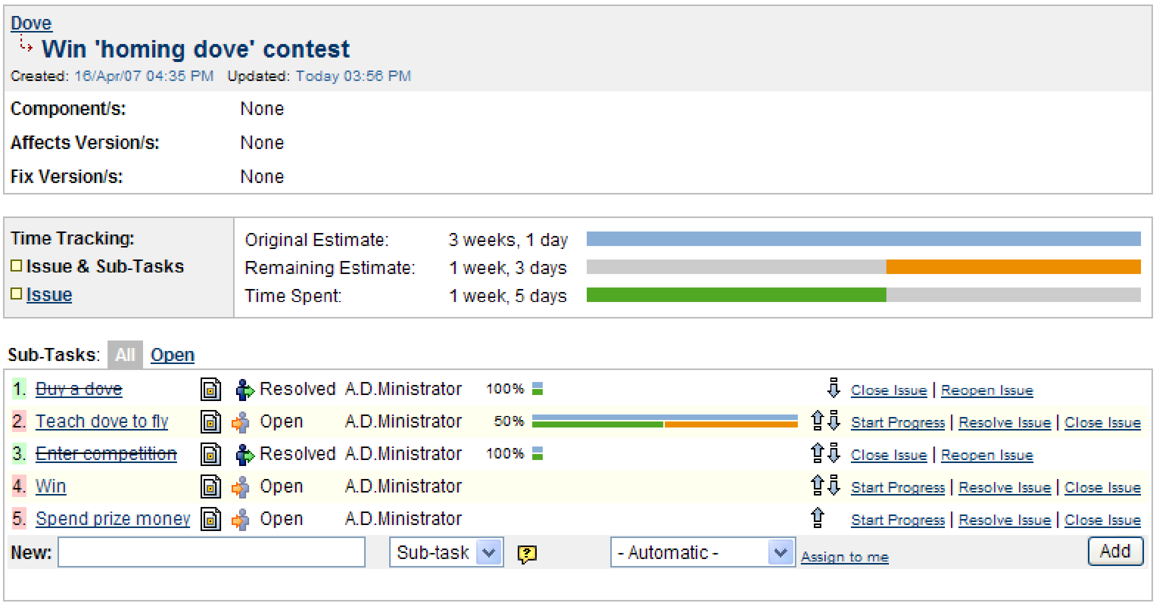
- Sub-task progress shown within issues
- Issue Navigator offers sub-task aggregates
- Time Tracking reports now include sub-tasks
- Multi-project 'Road Map' portlet
- Performance improvements
- Indexing improvements
- JIRA Labels Plugin
- Plus over 70 other fixes and improvements

Highlights of JIRA 3.11:

1

Sub-task progress shown within issues

When viewing an issue, you can now choose whether to view time tracking data for the issue only, or for the issue plus its sub-tasks:



- Click '**Issue**' (in the Time Tracking box) to show time tracking data for the 'parent' issue only, or '**Issue & Sub-Tasks**' to include the issue's sub-tasks.
- Time tracking data comprises:
  - **Original Estimate** (blue) — the amount of time the issue was expected to take to resolve, when it was first created.
  - **Remaining Estimate** (orange) — the remaining amount of time the issue is currently expected to take to resolve.
  - **Time Spent** (green) — the amount of time logged working on the issue so far.

Please note that sub-tasks are only available in the Enterprise and Professional editions of JIRA.

2

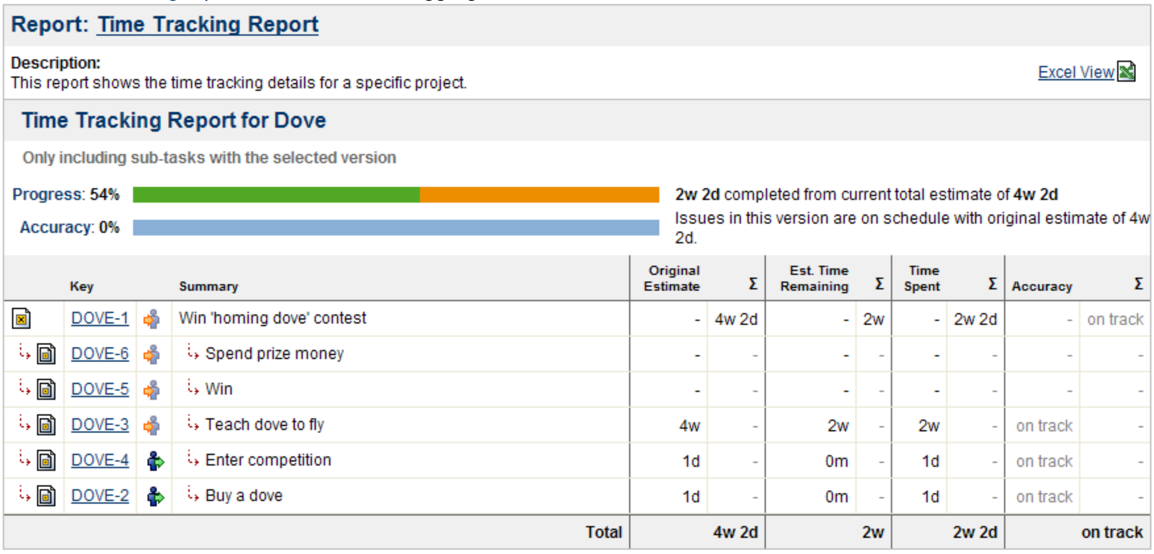
Issue Navigator offers sub-task aggregates

To take advantage of the new sub-task aggregates, the following time tracking fields are now available in the Issue Navigator:

- **Progress** — an issue's Time Spent, as a percentage of the issue's Original Estimate.
- **Progress** — the aggregate time spent on an issue's sub-tasks, as a percentage of the sub-tasks' aggregate Original Estimate.
- **Original Estimate** — the aggregate Original Estimate for an issue's sub-tasks.
- **Remaining Estimate** — the aggregate Remaining Estimate for an issue's sub-tasks.
- **Time Spent** — the aggregate Time Spent for an issue's sub-tasks.

Time Tracking reports now include sub-tasks

- A 'parent' issue now has two separate sets of time tracking data, if applicable: (1) its own; and (2) an *aggregate* that includes the issue's own time-tracking plus all sub-tasks that the user has permission to see.
- The Time Tracking report now includes the aggregate data as shown in the new '' columns:



Report: Time Tracking Report

Description:
This report shows the time tracking details for a specific project.

Excel View

Time Tracking Report for Dove

Only including sub-tasks with the selected version

Progress: 54% — **2w 2d** completed from current total estimate of **4w 2d**

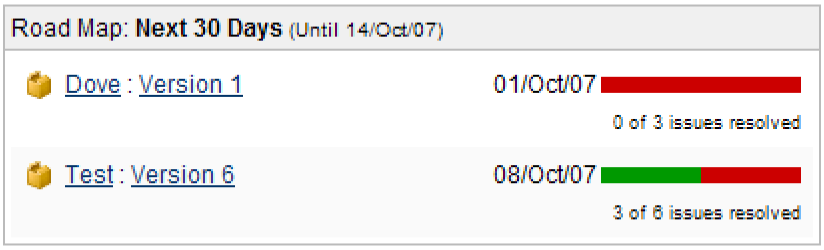
Accuracy: 0% — Issues in this version are on schedule with original estimate of 4w 2d.

Key	Summary	Original Estimate	Σ	Est. Time Remaining	Σ	Time Spent	Σ	Accuracy	Σ
DOVE-1	Win 'homing dove' contest	-	4w 2d	-	2w	-	2w 2d	-	on track
DOVE-6	Spend prize money	-	-	-	-	-	-	-	-
DOVE-5	Win	-	-	-	-	-	-	-	-
DOVE-3	Teach dove to fly	4w	-	2w	-	2w	-	on track	-
DOVE-4	Enter competition	1d	-	0m	-	1d	-	on track	-
DOVE-2	Buy a dove	1d	-	0m	-	1d	-	on track	-
	Total		4w 2d		2w		2w 2d		on track

- Additionally, both the Time Tracking report and the Version Workload report now include options for choosing which sub-tasks you would like to include in your reports.

Multi-project 'Road Map' portlet

The new Road Map portlet is a handy addition to your JIRA dashboard. It shows upcoming project milestones (i.e. versions which are due for release within a specified period of time), and a summary of progress made towards completing the issues in those versions.



You can:

- Click the name of a project (e.g. 'Dove') to browse the project.
- Click the name of a version (e.g. 'Version 1') to browse the version.
- Click the progress bar (shown in red and/or green) to view the version's issues in the Issue Navigator.

Performance improvements

JIRA 3.11 includes some significant performance tuning which should improve the experience of every JIRA user.

- Page size has been reduced.
- The effect of GZip compression has been improved due to optimised handling of Javascript and CSS. This will be of benefit to people using Firefox or Internet Explorer 7 browsers.
- Caching has been optimised (see the Developer Blog).

6

Indexing improvements

- 'Bulk operations' now re-index issues one at a time instead of all at once. This allows JIRA to better handle concurrent operations and higher user loads while maintaining index integrity.
- JIRA now uses Lucene 2.2.0. This has two main benefits:
    - JIRA can now handle the input of and search on dates before January 1st, 1970.
    - JIRA now performs atomic updates to issue and comment indexes, providing greater consistency when searching.

7

JIRA Labels Plugin

Alongside JIRA 3.11, we're announcing a major overhaul of the JIRA labels plugin. The plugin implements a labels (or tags, sometimes known as folksonomy) custom field for JIRA. Labels or tags make it easier to organise a large set of data by arbitrary, user-defined criteria.

You can read more details on the developer blog.

8

Plus over 70 other fixes and improvements

JIRA Issues (90 issues)

Key	Type	Summary	Priority	Status
JRA-15056		Editing Version info adds incorrect schedule data .		Resolved
JRA-14086		Setup page is accessable after JIRA instance has been setup already		Resolved
JRA-13864		Error is thrown when session timeout expired on editing a comment		Resolved
JRA-13560		Getting permgen OOME on eac/jira during startup		Resolved
JRA-13557		Create Labels build for 3.11		Resolved
JRA-13556		setHeader(null) causing NullPointer on Resin		Resolved
JRA-13510		An extra warning info for the JIRA standalone installation page.		Resolved
JRA-13502		Sub-task creation fails when browse project permission is give to CurrentAssignee, GroupCF or UserCF		Resolved
JRA-13500		Upgrade urlrewritefilter		Resolved
JRA-13496		Error message generated in Add Comment Panel when adding comment to an issue		Resolved
JRA-13491		Only include calendar javascript and css on pages that require the calendar		Resolved
JRA-13490		Ship minified versions of javascript and css files		Resolved
JRA-13489		Don't use scriptaculous loader		Resolved

JRA-13488	Remove dashboard dependency on scriptaculous		Resolved
JRA-13466	TransitionWorkFlow Jelly Tag doco has a bad example attribute - commentLevel		Resolved
JRA-13443	Subtask quick create submit can submit multiple times with multiple clicks		Resolved
JRA-13435	Base URL ending in slash breaks filter subscription HTML email links		Resolved
JRA-13425	Create Road Map Portlet		Resolved
JRA-13422	German translation for "Log work done" ist bad		Resolved
JRA-13417	'None' hard-coded in /templates/plugins/fields/edit/edit-multiselect.vm : should be internationalized		Resolved
JRA-13412	TransitionWorkflow Jelly tag will not work if there is no transition screen		Resolved
JRA-13411	JIRA XML import does not correctly ignore the unicode non-characters \uFFFF and \uFFFE		Resolved
JRA-13408	Pop up History/Filters windows when clicking History/Filters if they are open but under the main window		Resolved
JRA-13387	Upgrade atlassian-extras for the VSS plugin		Resolved
JRA-13382	combined.css and js files are loaded from the cache even after an upgrade of JIRA		Resolved
JRA-13367	Absence of an identifier on the comment element in per-issue generated XML		Resolved
JRA-13364	Wrong onClick location. Differs from href links.		Closed
JRA-13354	Subtask quick creation breaks when spaces available in between the property values.		Resolved
JRA-13345	Jira RSS 2.0 does not work with standard java parser - pubDate elements are incorrect		Resolved
JRA-13343	Problems with 'raw' rssMode when producing XML view of issue filter (in single-xml.vm)		Resolved
JRA-13335	Remove 'back to previous view' link on the printable view from printable media		Resolved
JRA-13332	Concurrent modification exception in com.atlassian.jira.web.tags.UserTag		Resolved
JRA-13319	Remove a link to Excel view from printable view of Time Tracking report		Resolved
JRA-13318	Hardcoded English terms on reports		Resolved
JRA-13295	JIRA standalone does't run as a Windows service - Failed creating java ... jvm.dll		Resolved
JRA-13291	Modify Time Tracking report to include aggregate time information		Resolved
JRA-13260	Make SOAP addWorklog method return the id of the created worklog		Resolved
JRA-13249	JIRA Turkish Language Property Files		Resolved
JRA-13248	Make email address in Support Request success/error page configurable		Resolved
JRA-13243	"Your Watches" translated as "Your Spies" in French....		Resolved

JRA-13227	Hide the priority of linked issues if the priority field is hidden		Resolved
JRA-13219	IntegrityChecker crashes with missing Portlet data.		Resolved
JRA-13210	Description in "Delete Issues" permission is inaccurate		Resolved
JRA-13179	ExceptionInInitializerError executing PopService		Resolved
JRA-13172	Separate out the searchers from the ThreadLocalQueryProfilingFilter		Resolved
JRA-13154	Upgrade to Lucene 2.x		Resolved
JRA-13138	Source release build needs to specify the 'Source' release info by default		Resolved
JRA-13113	BulkEditUserGroups: Provide helpful technique to prune out erroneous entries		Resolved
JRA-13110	SOAP/RPC getIssueTypes() should accept Project ID		Resolved
JRA-13109	Add a license file for the mindprod CSV parser to every distribution of JIRA		Resolved
JRA-13102	Calculate description text field lenght instead of hardcoding to 40 chars		Resolved
JRA-13085	Worklog Service should not allow lightweight issues to be passed in and persistened. It wrecks the index view of the world		Resolved
JRA-13083	Enabling "External user management" should not disable "View Project Roles" on user		Resolved
JRA-13069	Project Administrators do not get to edit "System Default Field Configuration "		Resolved
JRA-13057	UnsupportedOperationException with hasPermissionToCreate when called with DocumentIssueImpl		Resolved
JRA-13054	Display all installed languages and highlight default on the 500, system info and support request page		Resolved
JRA-13049	JIRA crashes when subscribing to a filter, and not logged in.		Resolved
JRA-13044	Upgrade EasyMock and DynaMock libraries		Resolved
JRA-13033	Make font size smaller for version / component descriptions on Versions / Components browse project tabs		Resolved
JRA-13017	Ensure SearchParameters can handle non-GV values in constructor.		Resolved
JRA-12985	Jelly doco for Create Issue tag says that default value of reporter tag is the current logged in user. But it ain't that simple.		Resolved
JRA-12948	Incorrectly reporting Installation type as EAR/WAR instead of Standalone when running as a Windows service		Resolved
JRA-12925	HTML issue event notification emails render poorly in Outlook 2007		Resolved
JRA-12917	Improve on-line documentation on move permission		Resolved
JRA-12912	CommentService validation methods do not check user's security level		Resolved
JRA-12868	Customfield User Picker "corrupted" after a user is deleted		Resolved
JRA-12864	Trivial UI bug		Resolved

JRA-12863		Malformed Ressource Bundle properties files		Resolved
JRA-12839		When session expires and a login is forced the add commet operation loses the original comment text		Resolved
JRA-12837		Bugzilla importer breaks when summary contains over 255 characters		Resolved
JRA-12807		Create clear docs explaining options for import/export project		Resolved
JRA-12790		Allow versions to be rescheduled to an arbitrary position on the Edit Version Details page		Resolved
JRA-12775		investigate getting JIRA working on Tomcat 6		Resolved
JRA-12687		Need to add Tomcat 6.0 documentation		Resolved
JRA-12584		Submitting a Support Request via the admin interface should verify that the mail server has been configured correctly		Resolved
JRA-12469		Improving UrlRewrite to better handle HTTP request parameters		Resolved
JRA-12354		Version Control shows logs of wrong issue		Resolved
JRA-12336		Remove MailSender (no longer used)		Resolved
JRA-11877		Automated JIRA backup failes without proper warning		Resolved
JRA-11588		Replace usage of deprecated class DateField with DateTools		Resolved
JRA-10461		Deleting an issue type breaks custom fields that had used it		Resolved
JRA-10353		Enable GZip compression on SOAP interface		Resolved
JRA-10326		JIRAs HTTP transfers are not efficient - improve web performance		Resolved
JRA-10254		Warning message when an issue is created with 0 bytes or corrupted file		Resolved
JRA-9461		Increase the scope of the gzip compression to include JS and CSS files		Resolved
JRA-9103		Investigate support for pre-1970 dates within JIRA		Resolved
JRA-6332		Comments override updated date in CSV importer		Resolved
JRA-6249		Add more custom icons for issue constants		Resolved
JRA-6007		Can not delete double-byte group in Group Browser		Resolved
JRA-3009		Calculate issue estimates using subtask estimates		Resolved

JIRA 3.11 Upgrade Guide

- Upgrading from JIRA 3.10.x to 3.11
- Upgrading from JIRA 3.9.x and earlier

Upgrading from JIRA 3.10.x to 3.11

Please follow the JIRA general upgrade instructions, plus note the following:

Administrative notes

- To take advantage of the performance enhancements in JIRA 3.11, it is recommended that you enable GZip compression (unless you are using mod_proxy).
- The jira-application.properties file has a new option, 'progress', for the following attribute:

```
jira.table.cols.subtasks
```

  The 'progress' option controls the display of the '**Progress**' field in issues and reports.

- JIRA 3.11 introduces a bug fix for JRA-12354. This means that the CVS and Perforce plugin will perform better at detecting commits for a particular issue key, avoiding partial matches on similar project keys. If users have taken advantage of the previous relaxed key matching, they can revert to the old behaviour by simply setting the following application property in the jira-application.properties file and restarting JIRA:

```
jira.option.key.detection.backwards.compatible=true
```

Plugins

Updating plugins
If you are using any of the following plugins, you will need to update them to their latest versions when performing the upgrade:

- Perforce plugin
- Subversion plugin
- Toolkit Plugin
- Charting Plugin
- RPC Plugin

3rd Party and personal plugins may also be affected (esp. if using lucene to store dates). These will need to be updated as well.

If these are updated after the upgrade (instead of as part of the upgrade), you will need to do a reindex.

A failure to update these plugins will result in lots of errors that look like:

Error 1

```
2007-07-25 15:23:27,553 http-8090-Processor4 ERROR
[charting.charts.createdvsresolved.CreatedVsResolvedChart] Could not create velocity parameters
For input string: "20070725144811"
java.lang.NumberFormatException: For input string: "20070725144811"
 at java.lang.NumberFormatException.forInputString(NumberFormatException.java:48)
 at java.lang.Long.parseLong(Long.java:415)
 at org.apache.lucene.document.DateField.stringToTime(DateField.java:100)
 at org.apache.lucene.document.DateField.stringToDate(DateField.java:104)
 at
com.atlassian.jira.ext.charting.data.DatePeriodStatisticsMapper.getValueFromLuceneField(DatePeriodSta
at
com.atlassian.jira.ext.charting.data.OneDimensionalObjectHitCollector.adjustMapForValues(OneDimension
at
com.atlassian.jira.ext.charting.data.OneDimensionalObjectHitCollector.collect(OneDimensionalObjectHit
at org.apache.lucene.search.IndexSearcher$1.collect(IndexSearcher.java:137)
 at org.apache.lucene.search.Scorer.score(Scorer.java:49)
 at org.apache.lucene.search.IndexSearcher.search(IndexSearcher.java:146)
 at org.apache.lucene.search.Searcher.search(Searcher.java:118)
 at
com.atlassian.jira.issue.search.providers.LuceneSearchProvider.search(LuceneSearchProvider.java:111)
```

Error 2

```
Caused by: java.lang.NoSuchMethodError:
org.apache.lucene.document.Document.add(Lorg/apache/lucene/document/Field;)V
 at com.atlassian.jira.plugin.labels.LabelSearcher.index(LabelSearcher.java:95)
 at
com.atlassian.jira.issue.index.indexers.impl.DefaultCustomFieldIndexer.addIndex(DefaultCustomFieldInd
at com.atlassian.jira.issue.index.IssueDocument.getDocument(IssueDocument.java:34)
 at com.atlassian.jira.issue.index.IssueDocumentBuilderImpl.get(IssueDocumentBuilderImpl.java:14)
 at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$IssueAndCommentCreator.handleIssueIndexing(
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$AbstractIssueAndCommentHandler.indexIssuesA
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer.indexIssuesAndComments(SingleThreadedIssueI
at
com.atlassian.jira.issue.index.MultiThreadedIssueIndexer.indexIssuesAndComments(MultiThreadedIssueInd
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$2.perform(SingleThreadedIssueIndexer.java:1
at com.atlassian.bonnie.ConcurrentLuceneConnection.withWriter(ConcurrentLuceneConnection.java:296)
 at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$1.perform(SingleThreadedIssueIndexer.java:1
at com.atlassian.bonnie.ConcurrentLuceneConnection.withWriter(ConcurrentLuceneConnection.java:296)
 at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer.indexIssues(SingleThreadedIssueIndexer.java
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$6.perform(SingleThreadedIssueIndexer.java:2
```

If you see these errors, please ensure that you are using the latest compatible version of the plugin for 3.11. If there is no supported version for 3.11, please contact the plugin developer via the plugin's homepage.

Developer notes

Modification to SOAP clients
If you have written a SOAP client for any JIRA version prior to 3.11 and are invoking any methods to get `RemoteIssueType` you will encounter the bug JRA-13529. The reason for this is that we have added extra information to the `RemoteIssueType` object that indicates if the issue type is a subTask issue type. To avoid the problem you will need to regenerate your remote object stubs against the updated JIRA 3.11 wsdl.

If you would like your SOAP client to work against multiple versions of JIRA then you need to use the latest stubs that have been generated against JIRA 3.11. You will need to **not** use any of the new functionality and you will need to remember that the `isSubTask` variable in the `RemoteIssueType` objects will be defaulted to `false`.

ThreadLocalQueryProfiler searchers have been moved to ThreadLocalSearcherCache
There may be a number of plugins that reference the ThreadLocalQueryProfiler searcher methods directly. These need to now reference the ThreadLocalSearcherCache.

Lucene Upgrade
We upgraded our version of Lucene to 2.2. If your plugin uses to Lucene to index/read data, please ensure that it works with JIRA 3.11. If you are indexing/reading dates, more than likely it will have broken and you will need to use the new Lucene 2 methods.

Database changes

There were no database changes in this release.

Upgrading from JIRA 3.9.x and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.10 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian is proud to announce **JIRA 3.10**, the latest release of our award winning issue tracking, workflow and project management software.

Major new features include:

- Editable worklogs
- 'Start Date' for worklogs
- New ways to browse Components and Versions
- AJAX-based 'User-picker' and 'Issue-picker'

This release also includes several bug fixes.

To see a list of *all* new features and improvements in this release — ask JIRA!

JIRA 3.10 is a free upgrade for any customer who purchased/renewed JIRA after the 9th of July, 2006. This release can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 3.10 Upgrade Guide.

Thank you for your feedback

Thank you to all the people who help us improve our products by 'voting' and providing ongoing feedback about what is important to you. JIRA 3.10 resolves nearly 360 of your votes.

In particular, our thanks to all those who voted for JRA-2411 (Ability to edit and remove work logs) and JRA-1959 (Allow date selection for work log). It gives us great satisfaction to deliver these features to you, and we hope you will find them useful (we know we will!)

Editable worklogs

Yes, worklogs can now be edited and deleted — with the issue's 'Time Spent' and 'Remaining Estimate' being adjusted appropriately in both cases.

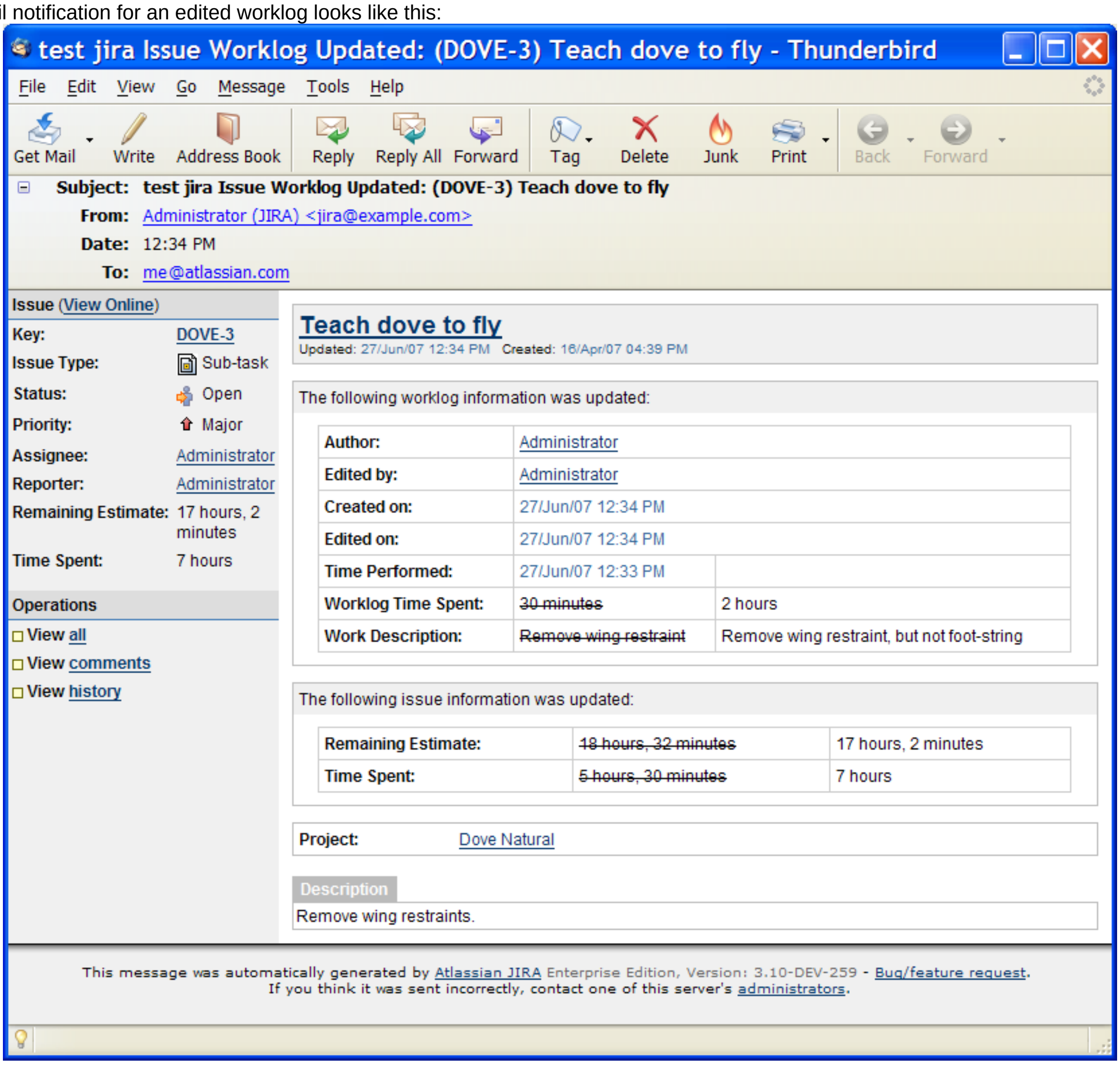
To ensure that only appropriate people can edit/delete worklogs, four new permissions have been added:

- 'Edit Own Worklogs'
- 'Edit All Worklogs'
- 'Delete Own Worklogs'
- 'Delete All Worklogs'

Similarly, to ensure that email notifications only get sent to the appropriate recipients, there are two new events:

- 'Issue Worklog Updated'
- 'Issue Worklog Deleted'

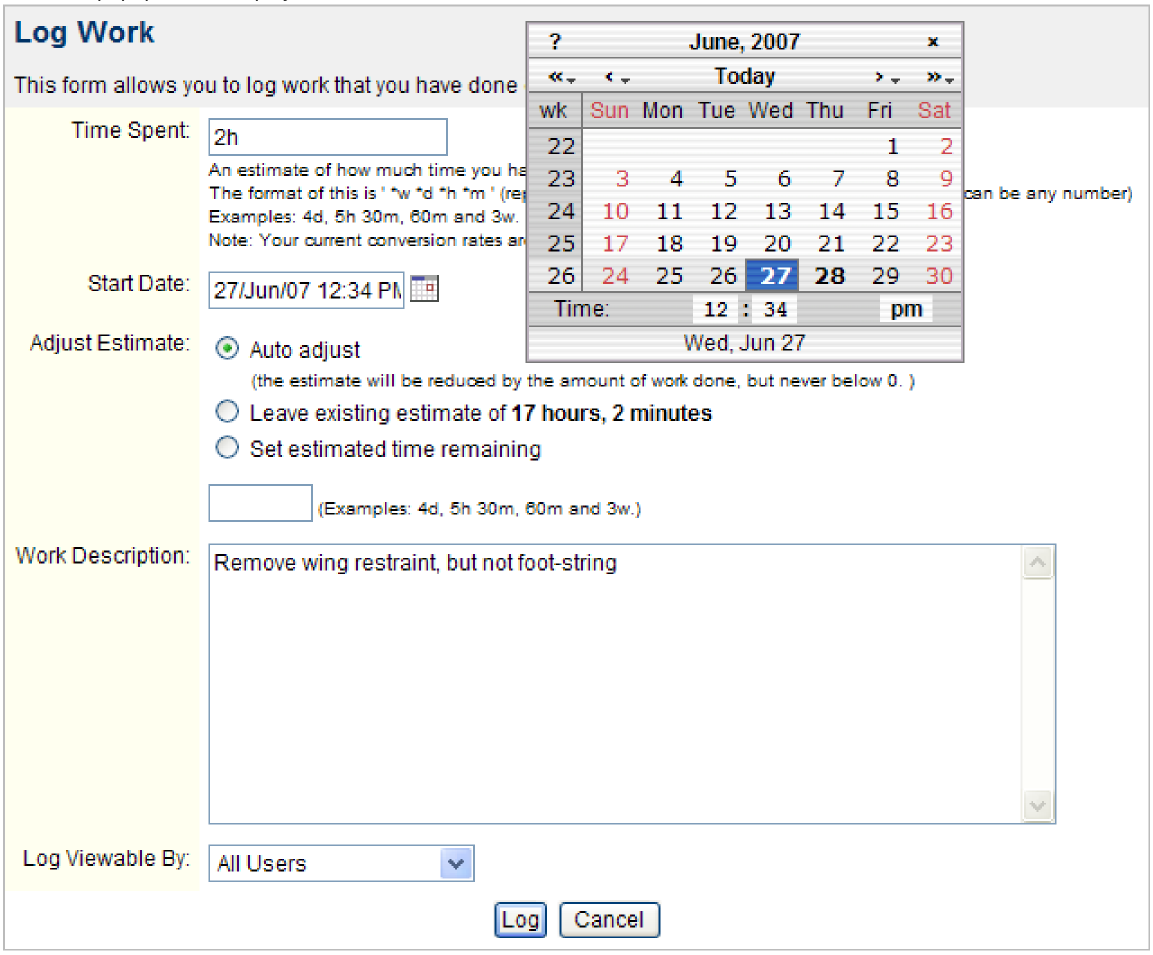
The email notification for an edited worklog looks like this:



All Worklog functions (create, retrieve, update and delete) are also available via the SOAP interface.

'Start Date' for worklogs

When logging work on an issue, you can now specify a 'Start Date'. Simply click the calendar icon to select the date/time when you started work. The calendar popup will be displayed:



... where you can:

- scroll back ('<') or forward ('>') to choose a different date.
- click the hour to increase it (or <Shift> click to decrease it).
- click the minute to increase it (or <Shift> click to decrease it).
- click 'am' / 'pm' to toggle between them.

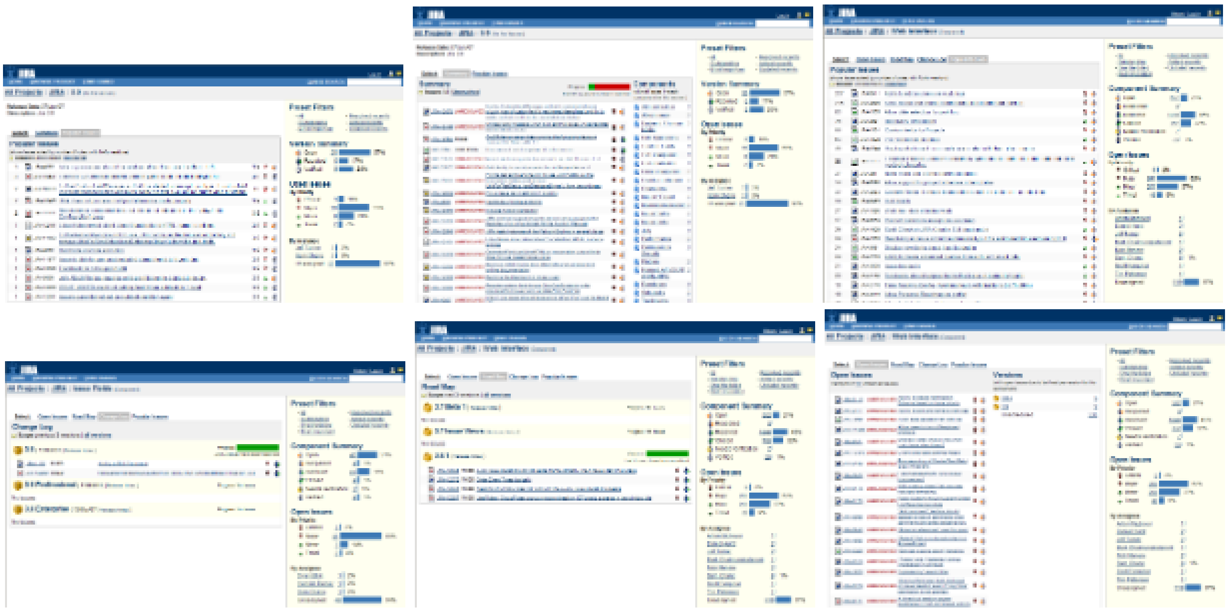
New ways to browse Components and Versions

We're all familiar with browsing a project to see a list of 'Open Issues', 'Popular Issues', and various other screens showing you important statistics about your project.

Now you can drill-down to an individual component or version of a project, by browsing a:

- Component's 'Open Issues'
- Component's 'Road Map'
- Component's 'Change Log' (i.e. resolved issues)
- Component's 'Popular Issues'
- Version's 'Summary' (i.e. all issues for that version, regardless of issue status)
- Version's 'Popular Issues'

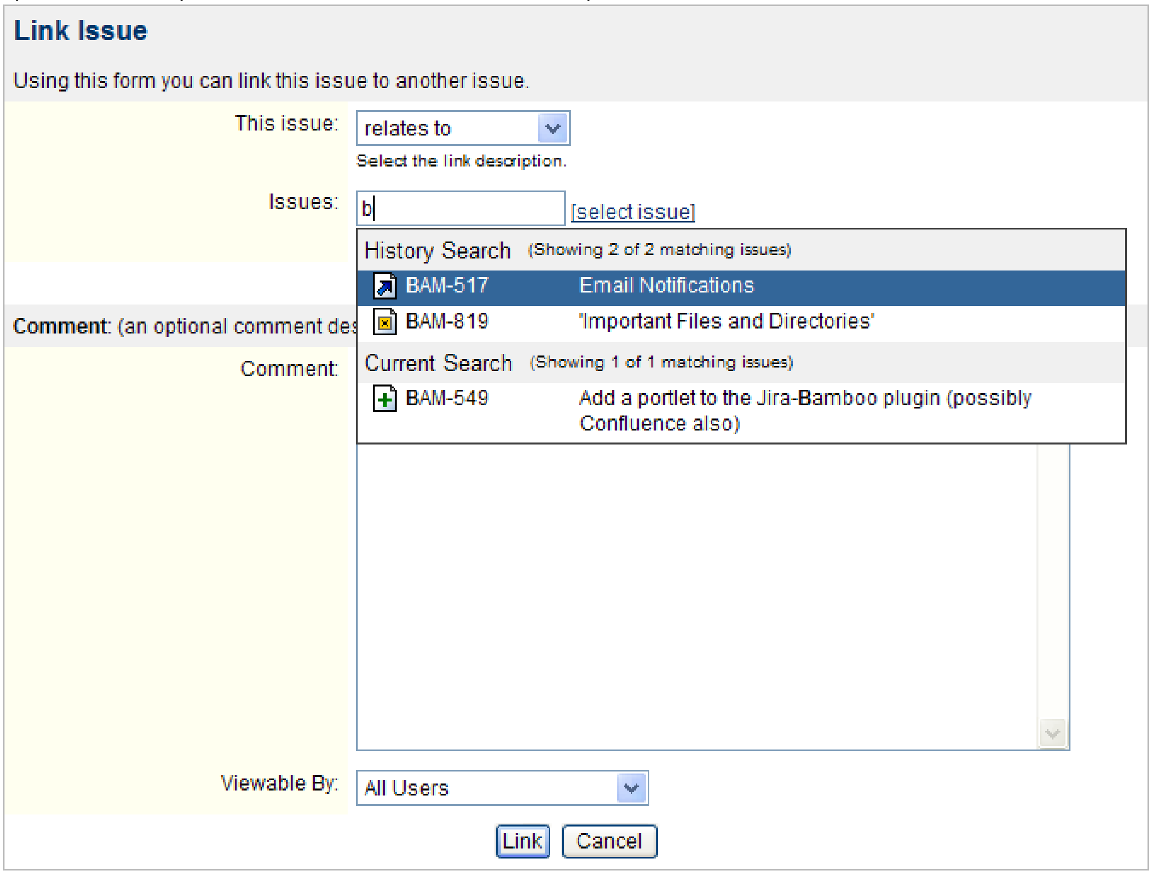
You can give this a try right now on JIRA. Just click on a component or version you're interested in!



The information on the new Component and Version summary pages is displayed using the Component Tab Panel and Version Tab Panel plugins. See the plugin types in the JIRA Plugin Guide for more information.

Auto-complete 'User-picker' and 'Issue-picker'

The 'Issue-picker' and 'User-picker' now have an AJAX-based auto-completion feature:



You're now able to simply start typing a user's name, or an issue's key or summary, and JIRA will provide a drop-down list of possible matches for you to select from. This should make selecting users and issues a lot quicker as you no longer need to click on the 'User-picker' icon or the '[select issue]' link and wait for the relevant pop-ups. The 'Issue-picker' will find matches within your latest search, as well as any matching issues you've been browsing recently.

This feature is enabled by default (though not for the 'User-picker' if you have more than 5,000 users).

If you wish to disable this feature (e.g. if you have very large numbers of users, or if your users' browsers are incompatible with AJAX), you can easily do so at the 'General Configuration' screen.

^Top

JIRA 3.10 Upgrade Guide

Upgrading from JIRA 3.9.3 to 3.10

Please follow the JIRA general upgrade instructions, plus note the following:

1. Plugins

There is a new version of the JIRA Calendar Plugin that links to the new 'Project Version' pages. This new version of the plugin is not backwards compatible.

Please note that the Kaamelot plugin for JIRA has not yet been updated. If you are currently using this plugin, you may want to hold off the upgrade to JIRA 3.10 until a compatible version of this plugin has been released.

2. Developer Notes

The ordering of the ListOrderedMap returned by SchemePermissions.getSchemePermissions() has changed. This also means that the order of the RemotePermission[] array returned by the RPC Plugin's JiraSoapService.getAllPermissions() method has changed. If you have extended your instance of JIRA please confirm that any remote applications retrieving permissions via SOAP still work. You may encounter problems if you have been retrieving specific permissions by their array index.

Database changes

In JIRA 3.10, the worklog records have moved from the 'jiraactions' database table to the new 'worklog' table. This new table contains the following columns:

```
Table "public.worklog"
    Column    |           Type           | Modifiers
--------------+--------------------------+-----------
 id           | numeric(18,0)            | not null
 issueid      | numeric(18,0)            |
 author       | character varying(255)   |
 grouplevel   | character varying(255)   |
 rolelevel    | numeric(18,0)            |
 worklogbody  | text                     |
 created      | timestamp with time zone |
 updateauthor | character varying(255)   |
 updated      | timestamp with time zone |
 startdate    | timestamp with time zone |
 timeworked   | numeric(18,0)            |
```

Upgrading from JIRA 3.9.2 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.10.2 Release Notes

JIRA 3.10.2 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.10.2 in Standard, Professional and Enterprise editions. This point release includes 24 bug fixes and improvements.

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

JIRA 3.10.2 can be downloaded here, and is of course free to all customers who purchased their JIRA licence or maintenance since August 17, 2006.

If upgrading, please refer to the JIRA 3.10.2 Upgrade Guide.

Not using 3.10? Learn about all the new features you're missing out on!

JIRA 3.10.2 includes the following bug fixes.

JIRA Issues (25 issues)

Type	Key	Summary	Priority	Status	Resolution

	JRA-14086	Setup page is accessable after JIRA instance has been setup already		Resolved	Fixed
	JRA-13094	administration - global settings - general configuration: User picker autocomplete option cannot be changed to On		Resolved	Fixed
	JRA-13210	Description in "Delete Issues" permission is inaccurate		Resolved	Fixed
	JRA-12600	CachedGenericConfigManager is not thread safe		Resolved	Fixed
	JRA-13272	Update Comment field on the attach screenshot page not wrapping at word boundaries		Resolved	Fixed
	JRA-13237	The WIKI Help mentions file:/// links buit they not longer work in major browsers		Resolved	Fixed
	JRA-12974	Sorting by work-ratio breaks if no issues have an original estimate		Resolved	Fixed
	JRA-10303	User Picker & Group Searcher Search Template does not respect Issue Type Context when Filtering		Resolved	Fixed
	JRA-13149	Bugzilla importer does not check if entered key is already used by a project		Resolved	Fixed
	JRA-13118	Windows installer uses existing Java JRE rather than built-in JRE		Resolved	Fixed
	JRA-13201	windows service installation script (service.bat) doesn't set the service correctly for JVM		Resolved	Fixed
	JRA-13285	"Ausgabehinweise" is a really really "literal" translation for "Release Notes" *yuck*		Resolved	Fixed
	JRA-13246	Minor typo mistake in English language pack		Resolved	Fixed
	JRA-12646	add 'projectrole' as an option for the 'type' attribute for the 'AddPermission' Jelly tag		Resolved	Fixed
	JRA-13224	Error when editing User Is In Group Custom Field Condition in workflow		Resolved	Fixed
	JRA-13232	Missing active row and columns links in dashboard portlets		Resolved	Fixed
	JRA-13158	2d Portlet loss of functionality to select row		Resolved	Fixed
	JRA-12881	Documentation of 2D portlet misleading		Resolved	Fixed
	JRA-13199	Easy NPE in Browse Version		Resolved	Fixed
	JRA-13209	moveissue.step1.desc in "Move Issue" error message		Resolved	Fixed
	JRA-13302	It is possible to see components without logging in		Resolved	Fixed
	JRA-13166	Empty dropdown box when trying to move subtask and changing Issue Type		Resolved	Fixed
	JRA-13151	Revert to 3.9 behaviour for stats page links for: Assignee, Version, Component, etc.		Resolved	Fixed
	JRA-13165	Calendar Turkish Lang File Cause JavaScript Error		Resolved	Fixed
	JRA-13217	The search description does not link to Browse Fix For Version and Browse Component page when searching versions or components		Resolved	Fixed

JIRA 3.10.2 Upgrade Guide

Upgrading from JIRA 3.10.1 to 3.10.2

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.9.3 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.10.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.10.1 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.10.1 in Standard, Professional and Enterprise editions. This point release includes 26 bug fixes and improvements.

JIRA 3.10.1 can be downloaded here, and is of course free to all customers who purchased their JIRA licence or maintenance since August 1, 2006.

If upgrading, please refer to the JIRA 3.10.1 Upgrade Guide.

Not using 3.10? Learn about all the new features you're missing out on!

JIRA 3.10.1 includes the following bug fixes.

JIRA Issues (29 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-13041	System Info should include all system properties		Resolved	Fixed
	JRA-13022	Support Request form does not include database statistics		Resolved	Fixed
	JRA-13025	Make Screenshot applet fake user agent so that it works with Crowd SSO		Resolved	Fixed
	JRA-13304	Permissions and Conditions should be linked in the documentation		Resolved	Fixed
	JRA-12994	Documentation of Jelly Login tag is misleading/incomplete		Resolved	Fixed
	JRA-13198	show Server ID field on the 'Setup Wizard' page		Resolved	Fixed
	JRA-12985	Jelly doco for Create Issue tag says that default value of reporter tag is the current logged in user. But it ain't that simple.		Resolved	Fixed
	JRA-13314	Edited comments appear to come from the original case author and not from the person performing the edit		Resolved	Fixed
	JRA-13096	Unnecessary notification message		Resolved	Fixed
	JRA-13066	Worklog Creation not easily extensible.		Resolved	Fixed
	JRA-13171	Ajax issue picker leaks searchers in threadlocal variable which results in index exceptions on windows when re-indexing		Resolved	Fixed
	JRA-12887	CSV importer wizard breaks when custom field name contains a plus		Resolved	Fixed
	JRA-13117	CSV importer wizard breaks when field name contains unbalanced number of opening and closing brackets		Resolved	Fixed
	JRA-13034	Not very good translation for v.3.10.		Closed	Fixed
	JRA-13059	misnamed I18n properties for Worklog		Resolved	Fixed

	JRA-13120	Incorrect russian translation of summary field in issue navigator		Resolved	Fixed
	JRA-12993	Failed Jelly script displayed with most menus at the top of the screen missing		Closed	Fixed
	JRA-12898	Jelly createIssue tag does not set more than 3 versions		Closed	Fixed
	JRA-13042	OutOfMemoryError in Events and Issue Status admin pages when lots of issue types and workflows		Resolved	Fixed
	JRA-13071	JIRA will not restart after disabling services of the RPC JIRA Plugin		Resolved	Fixed
	JRA-13057	UnsupportedOperationException with hasPermissionToCreate when called with DocumentIssueImpl		Resolved	Fixed
	JRA-13060	Certain multiple select list not having size parameter being specified, causing usability problem to certain browsers (e.g. Opera)		Resolved	Fixed
	JRA-12936	Login Panel should be dynamic with the width of logo		Closed	Fixed
	JRA-13104	Comment Text Box does not display in IE6 and 7		Resolved	Fixed
	JRA-13049	JIRA crashes when subscribing to a filter, and not logged in.		Resolved	Fixed
	JRA-12977	Sub-task icon background is not transparent		Closed	Fixed
	JRA-12989	User Picker minor bug with the display of "Displaying users"		Resolved	Fixed
	JRA-12924	Verbose logging when filter subscription sends to nonexistent group		Closed	Fixed
	JRA-13115	Add Crowd SSO configuration instructions to JIRA's seraph-config.xml file		Resolved	Fixed

JIRA 3.10.1 Upgrade Guide

Upgrading from JIRA 3.10 to 3.10.1

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.9.3 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.9 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian is proud to announce **JIRA 3.9**, the latest release of our award winning issue tracking, workflow and project management software.

New features include:

- Ability to convert sub-tasks to issues (and vice versa)
- Convenient new scheduler for filter subscriptions
- Separate permissions for 'Delete Comment', 'Delete Attachment' and 'Delete Issue'
- Performance Improvements for Project Roles

This release also includes over 30 bug fixes.

To see a list of all new features and improvements — ask JIRA!

494 of your votes have been addressed in this release. As always, thank you for taking the time to cast your vote and tell us what is important to you. We appreciate your feedback.

JIRA 3.9 is a free upgrade for any customer who purchased/renewed JIRA after 9 May, 2006. This release can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 3.9 Upgrade Guide.

Convert sub-tasks to issues (and issues to sub-tasks)

In JIRA 3.9, sub-tasks can now be converted to issues, and vice versa.

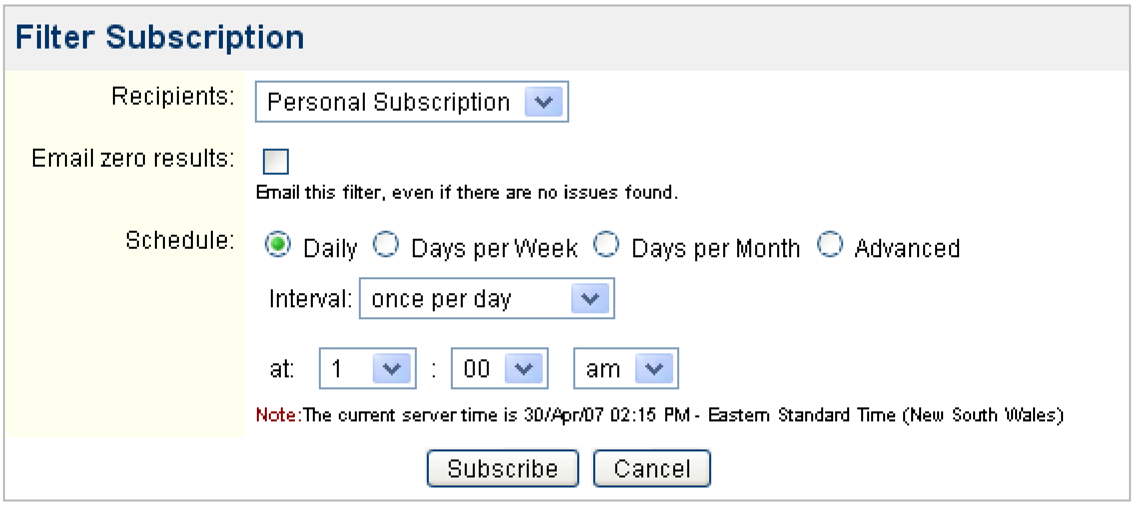
- Perhaps a particular sub-task has become important enough to be an issue in its own right, with its own sub-tasks? Simply go to the sub-task and click 'Convert to Issue'. You can now create sub-tasks for the converted issue.
- Or perhaps an issue should really have been created as a sub-task of an existing issue. No problem: simply go to the issue and — you've guessed it — click 'Convert to Sub-task'.

^Top

Convenient new scheduler for filter subscriptions

If you like to have your search results emailed to you, you will be pleased to see the new and improved scheduler in JIRA 3.9.

It's now even easier to choose exactly when and how often you would like to receive your emails, e.g. 'Every day at 1.00am', 'Every hour between 9.00am and 5.00pm, Monday to Friday'.



For the adventurous, we have also included a cron-based scheduler.

^Top

Separate permissions for 'Delete Comment', 'Delete Attachment' and 'Delete Issue'

You can now give people the ability to delete comments and/or attachments, without giving them the ability to delete entire issues.

JIRA 3.9 has four new project-level permissions:

- 'Delete All Attachments': This permission gives the user the ability to delete any attachments, regardless of who added them.
- 'Delete Own Attachments': This permission gives the user the ability to delete attachments that they created.
- 'Delete All Comments': This permission gives the user the ability to delete any comments, regardless of who added them.
- 'Delete Own Comments': This permission gives the user the ability to delete comments that they created.

Project Role Permission check performance improvements

The performance of permission checks against project roles has been significantly improved.

This improvement allows much faster load times for pages such as Dashboard, especially when several users are hitting JIRA at the same time. The performance improvement is most noticeable with large numbers of projects containing large numbers of project role user members. See JRA-12610 for details.

Previously this check was a CPU intensive operation that involved the intermediate creation of many intermediate objects - and degraded badly under concurrent access. The operation is now performed in constant time per project (basically a hash lookup).

^Top

JIRA 3.9 Upgrade Guide

Upgrading from JIRA 3.8.1 to 3.9

Please follow the JIRA general upgrade instructions. Additionally, please note the following:

In this version, there has been a change to the database which may cause problems for some customers.

The Recommended Upgrade Method

If you follow the recommended export/import upgrade procedure you should not experience any problems!

Pointing JIRA 3.9 at an existing, non-empty database

Some customers have a good reason for not following the recommended upgrade method. Using this method may result in database errors in your logs. You can avoid this if you modify your table structure manually, but the procedure is different depending on whether you have already started JIRA.

To avoid this, **BEFORE** you upgrade JIRA using this method, you can just drop the qrtz_cron_triggers table. This table has not been used by JIRA before 3.9, so it should be empty.

If you have **ALREADY** started JIRA 3.9 using your existing database, you may see the following log messages when JIRA starts up:

```
2007-04-18 15:31:53,345 main WARN [core.entity.jdbc.DatabaseUtil] Column  "CRON_EXPERSSION" of
table "public.qrtz_cron_triggers" of entity  "QRTZCronTriggers" exists in the database but has no
corresponding field
2007-04-18 15:31:53,347 main WARN [core.entity.jdbc.DatabaseUtil] Entity  "QRTZCronTriggers" has 3
fields but table "public.qrtz_cron_triggers"  has 4 columns.
```

The reason for this is that we have incorrectly changed a column in the `qrtz_cron_triggers` table. The intention was to fix a misspelling, but all we did was remove an underscore ("_")! The old column name is "CRON_EXPERSSION". The new column name is "CRONEXPERSSION". Note that both columns spell the word "expression" incorrectly.

To remove the error message, you must remove the old column as it is redundant. This column will not contain any data. The following table shows all columns in the qrtz_cron_triggers table. Columns that should be present are in **green** and columns that should be deleted are in **red**.

Keep	Keep	Keep	Delete
ID	TRIGGER_ID	CRONEXPERSSION	CRON_EXPERSSION

To delete the column, you can use SQL, but this may be slightly different between databases. Here's how it might look:

```
alter table qrtz_cron_triggers drop column CRON_EXPERSSION;
```

The data in this table

If you have users who have subscribed to issue filters, note that existing SimpleTriggers (time intervals) will be automatically converted into CronTriggers during the JIRA upgrade. In some cases, there may not be an exact mapping of time intervals to Cron Expressions, and approximations will be made (e.g. 'Every 5 weeks' will be converted to 'Once a month'). If this happens, the JIRA upgrade process will send an email to the user to inform them of the new schedule.

Upgrading from JIRA 3.8 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.9.3 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.9.3 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.9.3 in Standard, Professional and Enterprise editions. This point release includes:

- 7 bug fixes.
- professional French and German translations (see below)

JIRA 3.9.3 can be downloaded here, and is of course free to all customers who purchased their JIRA licence or maintenance since June 28, 2006.

If upgrading, please refer to the JIRA 3.9.3 Upgrade Guide.

Not using 3.9? Learn about the new features you're missing out on!

What's new in JIRA 3.9.3?

JIRA 3.9.3 includes the following bug fixes and improvements:

JIRA Issues (10 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-12960	UserRoleActorFactory is not null-safe causing weird behaviour at some point, e.g. comment box in view issue screen		Resolved	Fixed
	JRA-12956	Version Management Documentation shows versions in reverse order		Resolved	Fixed
	JRA-12828	"Edit Issue Security Level" behaviour does not match documentation.		Resolved	Fixed
	JRA-12657	Add French and German translations		Resolved	Fixed
	JRA-12889	XSL Stylesheet broken for RSS view		Resolved	Fixed
	JRA-12855	Resolved issue not showing with strikethrough on Manage links page		Resolved	Fixed
	JRA-12923	UI bug: Choosing "Share with group" select list option does not auto-select the radio button		Resolved	Fixed
	JRA-12888	Images in XSL Stylesheet are broken		Resolved	Fixed
	JRA-12833	Subscription integrity checks are misnamed		Resolved	Fixed
	JRA-13030	Bad french translation : before/after avant/après		Resolved	Fixed

Professional French and German translations

The French and German language packs have been completely rewritten and are much more comprehensive than ever before. The administration sections of JIRA are now completely translated. To achieve this, we recently engaged a professional translation company to provide German and French versions of JIRA. These translations are now available in JIRA 3.9.3, and we hope they will make your experience with JIRA even better.

Thank you, danke and merci to all those people who have provided the previous translations over the years, and also to those who have recently been helping us to check the translations for style, consistency and correctness.

While we hope you enjoy the new more comprehensive translations, if the language changes are not ideal for you it is possible to use JIRA 3.9.3 with the old translations. Administrators can revert to the translations from JIRA 3.9.2 and earlier, simply by replacing the new language pack jar file with the corresponding jar file from the earlier version. The French jar file is `language_fr_FR.jar` and the German one is `language_de_DE.jar`, located in `atlassian-jira/WEB-INF/lib` in JIRA standalone.

JIRA 3.9.3 Upgrade Guide

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Upgrading from JIRA 3.9.2 to 3.9.3

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.9.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.9.2 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.9.2 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.9.2 in Standard, Professional and Enterprise editions. This point release includes 13 bug fixes.

JIRA 3.9.2 can be downloaded here, and is of course free to all customers who purchased their JIRA licence or maintenance since June 18, 2006.

If upgrading, please refer to the JIRA 3.9.2 Upgrade Guide.

Not using 3.9? Learn about all the new features you're missing out on!

JIRA 3.9.2 includes the following bug fixes.

JIRA Issues (13 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-11284	When processing multiple "bugs" at the same time, the "Change Comment: " button is no longer being "checked" automatically.		Resolved	Fixed
	JRA-12798	Edit Comment email notification mixes up updater with original commenter		Resolved	Fixed
	JRA-12871	CVS Log Handler no longer generates Issue Commented notifications		Resolved	Fixed
	JRA-12797	Edit Comment text email notification does not list 'Edited on' and 'Edited by' details		Resolved	Fixed
	JRA-12632	NullPointerException when search request is made during an import		Resolved	Fixed
	JRA-12785	windows installer failing to set windows service correctly		Resolved	Fixed
	JRA-12830	untranslatable parts to issue comment edited emails templates		Resolved	Fixed
	JRA-12779	Bad i18n messages		Resolved	Fixed
	JRA-12893	Applications Portlet Does Not use Resource Bundle for Display "Lead" text		Resolved	Fixed
	JRA-12403	"Manage attachments" not issue-operation-aware (attach screenshot)		Resolved	Fixed
	JRA-12799	Compiling the 'Project Table' portlet with resin using JDK 1.6 does not work		Resolved	Fixed
	JRA-12631	Exception thrown from xml rpc servlet during import gives misleading error.		Resolved	Fixed
	JRA-12784	User Picker does not handle single quote (') correctly		Resolved	Fixed

JIRA 3.9.2 Upgrade Guide

Upgrading from JIRA 3.9/3.9.1 to 3.9.2

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.8.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.9.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.9.1 Release Notes

Recommended Upgrade
JIRA 3.9.1 contains a security update and is highly recommended. This fix is related to issue level security schemes and a way that users can see details of issues that they are not meant to. If you do not have issue level security schemes or do not use Project Roles you do not need to worry. If you do we recommend you upgrade immediately.

Note that the bug list below does not contain details of the bug as it would reveal how to exploit it as well.

For installations running 3.7.x or 3.8.x who cannot upgrade to 3.9.1, there is a patch available.

Atlassian Software Systems is proud to announce the release of JIRA 3.9.1 in Standard, Professional and Enterprise editions. This point release includes 10 bug fixes and some internationalisation improvements.

JIRA 3.9.1 can be downloaded here, and is of course free to all customers who purchased their JIRA licence or maintenance since May 30, 2006.

If upgrading, please refer to the JIRA 3.9.1 Upgrade Guide.

Not using 3.9? Learn about all the new features you're missing out on!

JIRA 3.9.1 includes the following bug fixes.

JIRA Issues (11 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-12671	Unassociated calculated fields are displayed on confirmation pages of Move and Convert issue, even when not in context		Resolved	Fixed
	JRA-12741	Multiselect Search Template doesn't honor HTML		Resolved	Fixed
	JRA-12494	Work Description on Work Logged Notification Email do not preserve carriage returns		Resolved	Fixed
	JRA-12843	Add a link to manage subscription in the subscription email		Resolved	Fixed
	JRA-12694	Update the code signing certificate used for the installer and screenshot applet		Resolved	Fixed
	JRA-12720	Component is always swapped while being deleted		Resolved	Fixed
	JRA-12393	Comment field jumps on "Preview" click when wiki-markup is enabled		Resolved	Fixed
	JRA-12667	DefaultRoleActor and ProjectRoleActor implementations should not hold references to the ProjectRole and Project objects		Resolved	Fixed
	JRA-12528	Can't remove an user from a custom project role		Resolved	Fixed
	JRA-12481	When viewing a saved filter, the 'Current View' links are incorect		Resolved	Fixed
	JRA-12737	Browse Project visual selection status is lost when selecting project tab panels		Resolved	Fixed

Important Security Patch for JIRA versions 3.7.x & 3.8.x

Please find attached an important security patch for JIRA 3.7.x and 3.8.x

If you are using Project Roles and have Issue Security schemes that use Project Roles and you cannot upgrade to 3.9.1 then **you must install this patch**.

Installation Instructions.

If you are using JIRA Standalone please do the following:

1. Download the attached patch zip file
2. Extract the contained files to <jira_install_dir>/atlassian-jira/WEB-INF/classes/ overwriting the files there
3. Restart JIRA

If you are using the WAR distribution of JIRA:

1. Download the attached patch zip file
2. Extract the contained files to <jira_install_dir>/atlassian-jira/WEB-INF/classes/ overwriting the files there
3. Run 'build.sh clean' on unix or 'build.bat clean' on windows
4. Run 'build.sh' on unix or 'build.bat' on windows
5. Redeploy the JIRA web app into your application server
6. Restart the application server

JIRA 3.9.1 Upgrade Guide

Upgrading from JIRA 3.9 to 3.9.1

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.8.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.8 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian is proud to announce **JIRA 3.8**, the latest release of our award winning issue tracking, workflow and project management software.

New features include:

- Editable comments
- Self-installer for JIRA
- CAPTCHA for new account signup
- Integration with Crowd
- Improvements to the Bugzilla importer

Feature preview:

- DHTML-loading of Issue screens

This release also includes more than 30 bug fixes.

To see a list of all new features and improvements — ask JIRA!

Weblogic Users
Please note that there is a known Weblogic and Firefox issue that affects JIRA 3.8.x when using Weblogic and Firefox. See the issue for more detail.

Upgrading

JIRA 3.8 is a free upgrade for any customer who purchased/renewed JIRA after 9 March, 2006. This release can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 3.8 Upgrade Guide.

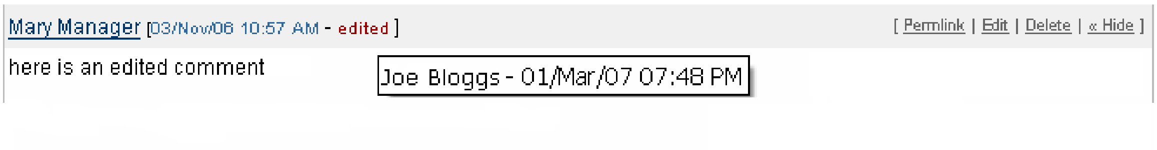
Editable comments

SPECIAL NOTE: Thank you to the 175 people who voted on this feature request. Your input is vital to planning the JIRA development roadmap, and we appreciate you taking the time to tell us what is important to you.

Issue comments can now be edited. To ensure that comments can only be edited appropriately, two new project permissions have been provided so that you can restrict the ability to edit comments:

- 'Edit Own Comments' -- this allows users to edit comments which they have created. This permission is typically granted to end-users.
- 'Edit All Comments' -- this allows users to edit comments which other people have created. This permission is typically granted to administrators.

If a comment has been edited, the word 'Edited' will appear in the comment trail. You can hover your mouse over the word 'Edited' to see who edited the comment and when, e.g.:



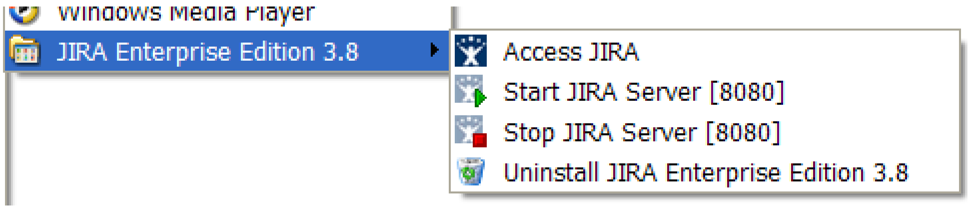
You can also configure email notifications to be sent when the 'Comment Edited' event occurs.

^Top

Self-installer for JIRA

New and existing customers can get the latest version of JIRA up and running on Windows within minutes, using our new installer. No more setting environment variables, installing Java, and running things from the command line. Even novice users will be able to access JIRA in as little as 5 clicks after the download.

For your convenience, we have even added controls to the Start Menu to make life as easy as possible:



We also bundle JIRA with the latest Sun JRE (Java 6.0), so there is no need for a separate download and installation. It all comes packaged and ready to run!

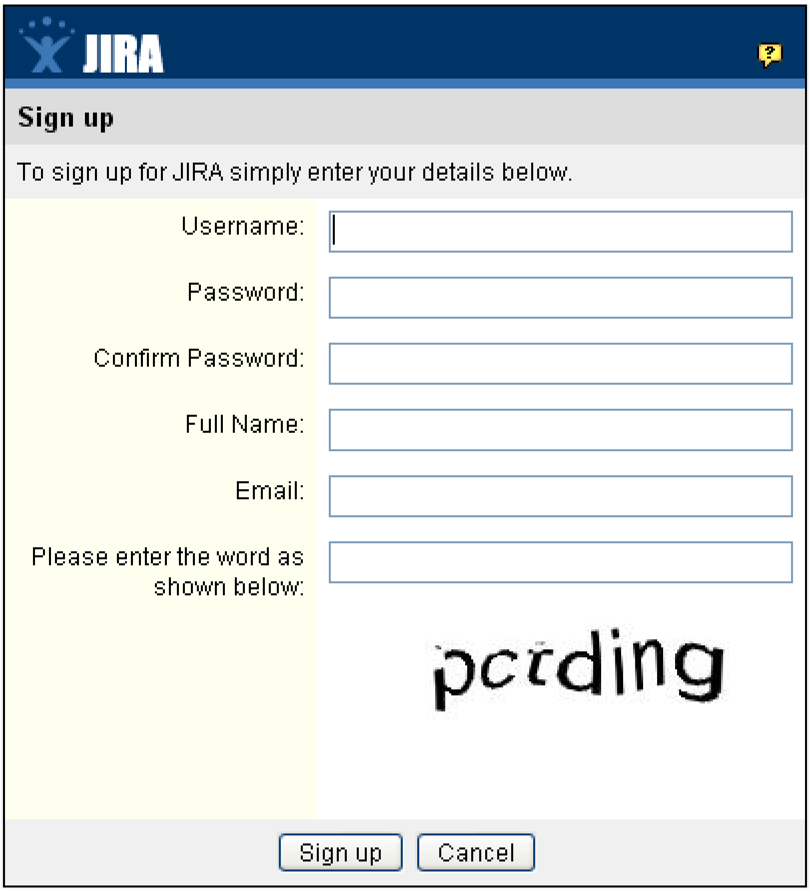
- Self extracting -- no need for Winzip or any other tools.
- Optional installation as a Windows Service.
- 'Start' and 'Stop' menu items, for both normal installation and Windows Service installation.
- Tested on Windows Vista.
- Detection of any other JIRA instances installed on the same machine.
- Port detection (detects if any other web servers are running on the machine and resolves conflicts).
- Uninstaller (not that you will be needing it).

^Top

CAPTCHA for new account signup

If your JIRA server is accessible from outside your organisation's firewall, and you have enabled signup, then you may want to also enable *CAPTCHA*.

CAPTCHA helps ensure that only real humans (and not automated spam systems) can sign themselves up to JIRA. When CAPTCHA is enabled, visitors will need to recognise a distorted picture of a word (e.g. "pctding" in the screenshot below), and must type the word into a text field. This is easy for humans to do, but very difficult for computers. We are hoping that this feature will help to [fight] evil JIRA spammers (see JRA-12293 for some of the background to this.)



We recommend anyone running a public JIRA instance (e.g. Codehaus, Apache, OpenSymphony) to enable this feature.

^Top

Integration with Crowd

JIRA can now be integrated with Atlassian Crowd, which is useful for organisations that have multiple user-repositories.

- How to integrate Crowd with JIRA

^Top

Improvements to the Bugzilla importer

JIRA's Bugzilla importer has been enhanced. When importing Bugzilla bugs and creating corresponding issues, JIRA will now:

- create Issue Links of type 'Duplicate' between issues that have been imported and marked as duplicates in Bugzilla. The 'Duplicate' link type will be automatically created if it doesn't exist.
- import Component Lead information.
- concatenate the 'URL' field (from Bugzilla) to the 'Environment' field in JIRA issues.

Many thanks to Vladimir Alexiev for his contributions.

^Top

DHTML-loading of Issue screens (Feature Preview)

To facilitate faster loading of issue screens (e.g. the "Edit Issue" screen and the "Resolve Issue" screen), we are working on a feature that will allow JIRA to re-load only those parts of the screen that have changed. We hope this will save a little of your valuable time, and improve your experience with JIRA.

This feature is shipped in JIRA 3.8, but as it has a few known problems (JRA-12348 and JRA-12349) it is disabled by default. The known problems should not affect many users, so we encourage you to turn it on and provide any feedback by adding comments to this page. We would especially like to hear if you believe the feature is useful or if you find any problems that we are not aware of.

To enable the feature, please navigate to Administration -> General Configuration and enable the 'Dynamic HTML for issue screens' option. ^Top

Feedback for DHTML-loading of Issue screens

Please add any feedback you have about the 'DHTML-loading of Issue screens' in JIRA 3.8 as a comment to this page.

We would be very interested to know whether you think the feature is useful and hear about any problems that you find.

Currently we know about the following issues:

1. JRA-12348
2. JRA-12349

JIRA 3.8 Upgrade Guide

Upgrading from JIRA 3.7.4 to 3.8

Please follow the JIRA general upgrade instructions. Additionally, please note the following:

1. The 'Assign To' field name has been changed to 'Assignee' consistently across JIRA. This means that users need to be aware that the column heading in the Excel export has changed to 'Assignee' from 'Assign To'. Please be aware of this if for example you are exporting JIRA data to Excel and running macros on it. The field has been renamed for the following Issue Navigator Views:
    - Excel (all)
    - Word (all)
    - Full Content
2. The `issuecommentedited.vm` e-mail template for the new Issue Comment Edited event has been added to the `WEB-INF/classes/email-template-id-mappings.xml` file. The id of the e-mail template used for sending Filter Subscriptions has changed to 10000. **If** you have manually modified the `WEB-INF/classes/email-template-id-mappings.xml` file in the version of JIRA you are upgrading from, please do not simply copy the old file to JIRA 3.8. You will need to port your changes to the `WEB-INF/classes/email-template-id-mappings.xml` file that is shipped with JIRA 3.8. If you have not changed the `WEB-INF/classes/email-template-id-mappings.xml` file, you do not need to worry about this.
3. Two columns have been added to the `jiraaction` table to support editable comments.

Upgrading from JIRA 3.7.3 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.8 Database Schema Changes

The table below summarises the changes to the database schema. Please note, that if you have developed any custom utilities which query or modify the JIRA database directly (i.e. without using the JIRA API), please check whether the utilities need to be updated.

New Database Table Columns

The following database columns have been added to the existing `jiraaction` table to support editable comments:

TABLE NAME	NEW COLUMN NAME
jiraaction	updateauthor
jiraaction	updated

JIRA 3.8.1 Release Notes

JIRA 3.8.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is proud to announce the release of JIRA 3.8.1 in Standard, Professional and Enterprise editions. This point release includes 23 bug fixes and improvements, notably:

- **Integrity Checker can cause data corruption** — - JRA-12491
- **SSH Connection to CVS in CVS plugin does not close stdout** — JRA-12480 particular thanks go to David Delbecq from the Royal Meteorological Institute of Belgium for help finding this one.
- **OutOfMemoryErrors when reindexing if large numbers of custom fields and issues** — a thread-local cache for custom field values was expanding unbounded when reindexing all issues - JRA-12411

JIRA 3.8.1 can be downloaded here, and is of course free to all customers who purchased their JIRA licence or maintenance within the last 12 months.

If upgrading, please refer to the JIRA 3.8.1 Upgrade Guide.

Not using 3.8? Learn about all the new features you're missing out on!

JIRA 3.8.1 includes the following bug fixes.

JIRA Issues (23 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-12338	If a service is attempted to be loaded that JIRA cannot find it loads the UnloadableJiraServiceContainer instead which interferes with shutdown		Resolved	Fixed
	JRA-12411	OutOfMemoryError during reindex all (due to EagerLoadingOfbizCustomFieldPersister's caching of custom field values)		Resolved	Fixed
	JRA-12410	Deleting a custom field which has an issue security scheme or permission scheme on it causes system error		Resolved	Fixed
	JRA-12480	CVS module of JIRA closes STDOUT		Resolved	Fixed
	JRA-12345	To provide easier configuration between Crowd and JIRA the attached crowd-ehcache.xml file will need to be added to the jira release		Resolved	Fixed
	JRA-12507	Update splitting JIRA instances doc to mention attachments		Resolved	Fixed
	JRA-12501	Update the mail documentation to mention that system properties override mail server settings		Resolved	Fixed
	JRA-12343	Mail is not correctly finding a user that exists - then User creation fails with DuplicateEntityException		Resolved	Fixed
	JRA-12491	Caching in integrity checker can make integrity checker corrupt workflow data		Resolved	Fixed
	JRA-11641	Please allow ability to set mail encoding separtely from html/DB enoding		Resolved	Fixed
	JRA-12565	Example CloseParentIssueFunction		Closed	Fixed
	JRA-12398	Clicking on user prompt in Manage Watch List in Internet Explorer 7.0.5730.11 results in an error		Resolved	Fixed
	JRA-12371	Screenshot applet link available in linux but cant paste the image from the clipboard		Resolved	Fixed
	JRA-12339	Charting Portlets not being rendered in Printable View		Resolved	Fixed
	JRA-11809	Component Deletion is not logged in tickets which had their component changed (audit trail issue for SOX)		Resolved	Fixed
	JRA-12335	Project Role Modifications not reflected in Issue Security Scheme		Resolved	Fixed
	JRA-12381	Data anonymiser does not blank out SMTP server username and password		Resolved	Fixed
	JRA-11858	Remove the predefined "Users" role		Resolved	Fixed
	JRA-12372	Order Event Types logically		Resolved	Fixed
	JRA-12350	CSS is not correctly applied to pages loaded via AJAX issue operation links		Resolved	Fixed
	JRA-12387	UserPicker / GroupPicker pop-up windows break on IE7 due to a space in the window title		Resolved	Fixed
	JRA-12349	Resizing of window does not work with the AJAXy issue operation screens		Resolved	Fixed

	JRA-12348	AJAX Issue operations do not resize iframe correctly when there is text that wraps		Resolved	Fixed

JIRA 3.8.1 Upgrade Guide

Upgrading from JIRA 3.8 to 3.8.1

Please follow the JIRA general upgrade instructions.

> **Charting Plugin must be upgraded to v1.3.5**
> Please note that the version of JFreeChart included in JIRA 3.8.1 is **not compatible** with older versions of the Charting Plugin. If you have the Charting Plugin installed, please make sure you upgrade it to version 1.3.5 or above.
>
> The updated JFreeChart 1.0.4 version is **not** backwards compatible with the previous 1.0.0pre2 version, so if you have any plugins that utilise JFreeChart, please make sure you test them before upgrading.

Upgrading from JIRA 3.7.4 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.7 Release Notes

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

Atlassian is proud to announce **JIRA 3.7**, the latest release of our award winning issue tracking, workflow and project management software.

New features include:

- Project Roles
- 'Charting' View for Issue Navigator
- RSS Improvements
- User Properties
- SVN Project Panel plugin
- SVN Commit Acceptance plugin
- And much more...

This release also includes over **100** bug fixes and **60** improvements. This version is a free upgrade for any customer who purchased/renewed JIRA after 13 December, 2005.

Upgrading

The 3.7 release can be downloaded from the JIRA Download Center. Before upgrading, please refer to the JIRA 3.7 Upgrade Guide.

Project Roles

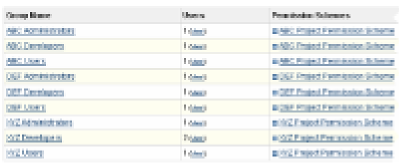
In JIRA 3.7, you can configure project roles (e.g. developer, tester, administrator), and assign users/groups to these roles on a per-project basis. If you have more than a few projects, this will significantly simplify administration.

Users can belong to different project roles in different projects, e.g.:

Ease of management
Does your system currently contain multiple, project-specific groups? Once you upgrade to JIRA 3.7, your permission schemes and notification schemes can use project roles instead of groups. By implementing project roles, you may be able to greatly reduce the number of groups, permission schemes and notification schemes in your JIRA system.

Tools are provided to help you migrate your permission schemes and notification schemes from using groups to using project roles, for example:

The old



The new

Delegated administration
In JIRA Enterprise, a project administrator* can assign users and groups to project roles for their project. If their project's permission scheme and notification scheme are using project roles, the project administrator can control who may access their project and who receives email notifications. In Professional and Standard Editions the global administrator permission is required to manage role membership of a project.

Global access to JIRA is still controlled via groups, which are managed by JIRA global administrators.

**A project administrator is someone who has the 'Administer Project' permission, but not neceessarily the global 'JIRA Administrator' permission.*

^Top

'Charting' View for Issue Navigator

The JIRA Charting Plugin now integrates with your Issue Navigator. When viewing search results you can click the 'Chart' option in the Issue Navigator views to popup an instant chart view.

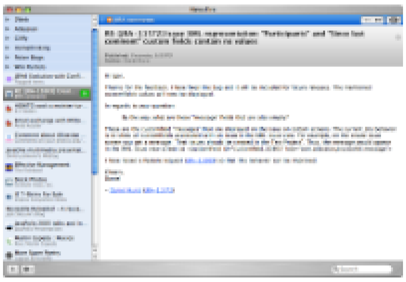
From the chart view popup you have the option to configure any chart that is available via the charting plugin. Once happy with your chart and its configuration you can, in one step, create a named filter and save the chart to any page on your dashboard.

Unable to render embedded object: File (chartPopupScreenshot3.jpg) not found. Unable to render embedded object: File (chartPopupScreenshot2.jpg) not found.

RSS Improvements

RSS Feeds got a completely new look:

- **New RSS 2 compliant feed** — this feed will enable your RSS reader to recognise issue updates correctly, rather than report updates as newly created issues.
- **Much more readable RSS** — the new RSS feed presents issues in a much more readable format. If, with previous JIRA releases, you have been pointing your RSS reader at JIRA's XML feed, we strongly suggest switching to the new RSS feed.
- **Comments RSS feed** — an RSS feed that shows comments which have been recently added to issues matching your search criteria. If you have ever wanted to see new comments added to issues you are interested in, this feed is what you have been looking for:

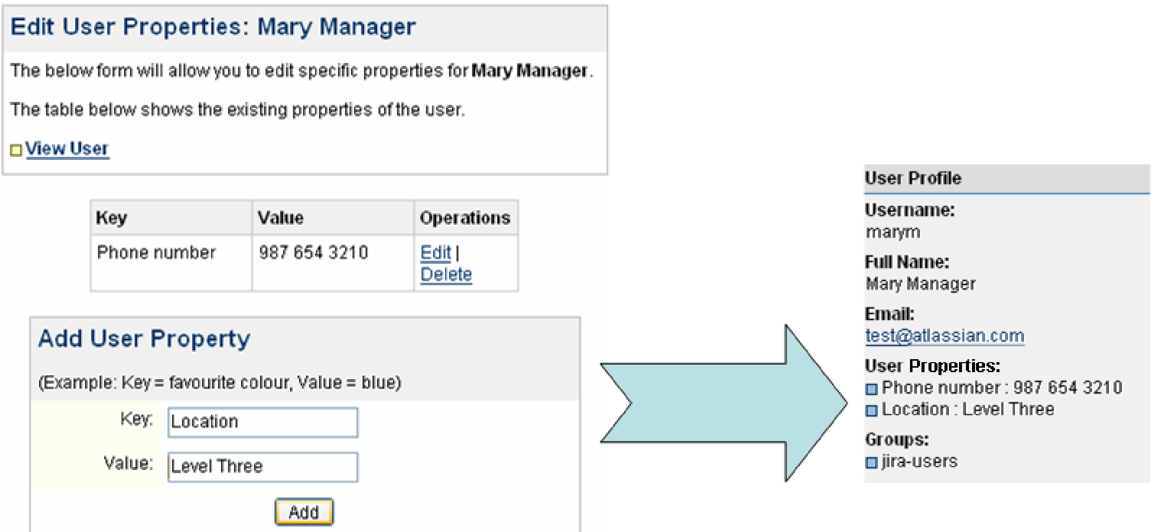


^Top

User Properties

Ever wanted to record some additional information about a user? For instance, you might want to record their phone number, location, department, cost centre, etc.

In JIRA 3.7 you can easily add user properties of your choice. Once a user property is added, it is visible (to administrators) in the User Profile:



^Top

SVN Project Panel plugin

The JIRA Subversion Plugin now features a new project tab, which shows all commits made against a particular project or a project version, giving you a summary of recent developer activity on the project.

This new tab is displayed on the Browse Project page for each project:

Unable to render embedded object: File (SVNProjectTab.png) not found.

You can download this plugin from its home page.

^Top

SVN Commit Acceptance plugin

In some environments, developers like the idea that there must be a one-to-one correlation between issues and check-ins. The new SVN Commit Acceptance plugin gives JIRA the ability to approve or deny any check-in made to CVS or SVN. We've started by allowing administrators to check three of the most common uses:

- Does this commit reference a valid issue key?
- Is that issue open?
- Does that issue belong to the committer?

Unable to render embedded object: File (commit-acceptance-plugin-configurator.png) not found.

This plugin has two parts: an RPC plugin and a client-side perl or python script. The perl script uses XML-RPC to call the plugin, passing in the committer and the commit message. The plugin checks any of the rules that the administrator has configured, and returns a yes or no, which causes the perl script to allow or disallow the commit.

You can download this plugin from its home page.

^Top

Other Improvements

JIRA 3.7 features a large number of other improvements, the most notable include:

1. **Internet Explorer 7 compatibility** — JIRA 3.7 is compatible with the latest browsers, including Internet Explorer 7. You may want to check out the keyboard shortcuts.
2. **Improved search robustness** — In previous JIRA releases, each search caused additional memory usage and, during peak-hours, many concurrent searches could cause JIRA to run out of memory. In JIRA 3.7 the searching sub-system has been revamped so that many more searches can be executed concurrently in *constant memory*.
3. **AJAX-loading of dashboard portlets** — Portlets which can be slow to load are now loaded in two parts, making the Dashboard display much faster. The first (quick) part of the portlet is loaded with the Dashboard; the second is loaded as a separate request. For example, the List All Filters portlet shows the filter names first, and then fetches the count of matching issues for each filter.
4. **HSQLDB Upgrade** — The built-in database (which ships with JIRA Standalone) has been upgraded to a more stable version (1.8.0.5).
5. **Tomcat Upgrade** — The built-in application server (which ships with JIRA Standalone) has been upgraded to version 5.5.15.
6. **Performance improvements** — If you're using JIRA 3.6.3 or above, you have already seen some performance improvements. With JIRA 3.7, we've added:
   - Excel and XML exports, and RSS feeds, now use constant memory, which means that you are able to exports thousands of issues without affecting other JIRA users, or causing JIRA to run out of memory.
   - Faster page loads — all JavaScript and CSS files can now be cached by your browser, which makes every page in JIRA load faster.
7. **Time tracking improvements**:
   - It is now possible to import issue estimates via CSV.
   - It is possible to configure how the time tracking estimates and logged work information is formatted. You can choose 'days', 'hours' or 'pretty'. When choosing a specific time unit (e.g. days or hours) the information will be shown as fractions of the chosen unit (e.g. 6.5 hours). `Pretty` format preserves the way JIRA behaved in previous releases, i.e. breaks down the time into minutes, hours, days and weeks.
8. **Sub-task fields are now configurable** — You can now choose which sub-task fields are displayed on the sub-task 'Quick Create' form (shown on parent's 'View Issue' page). This is done via the jira-application.properties file.
9. **'Preset Filters' are now pluggable** — The 'Preset Filters' (which appear on the Project portlet and in the 'Browse Project' menu) are now pluggable. This means you can:
   - Add new 'Preset Filter' links. For example, add a link to a search that will find all issues in a custom status (e.g. Awaiting QA Approval).
   - Choose the display order of 'Preset Filter' links.
   - Place conditions on when a filter is visible (e.g. 'Assigned to me' filter is only shown to logged in users).
     For details, please see How to create a custom preset filter.
10. **Navigation menus are now pluggable** — JIRA 3.7 gives the ability for plugins to inject links to various sections of JIRA's UI. For example:
    - Main navigation bar (which appears accross the top of most JIRA pages).
    - Navigation pop-ups (e.g. History, Filters, Profile, etc).

- Administration Menu (links appearing down the left-hand side in the administration section).
  This functionality greatly enhances how a plugin can interact with JIRA users. For example, plugins can now display a custom link in JIRA's Administration section and allow JIRA Administrators to provide configuration information via JIRA's UI, rather than having to tweak the `properties` file.
  The custom links are called 'Web UI Modules' in JIRA. For details on how to create these, please see this document.

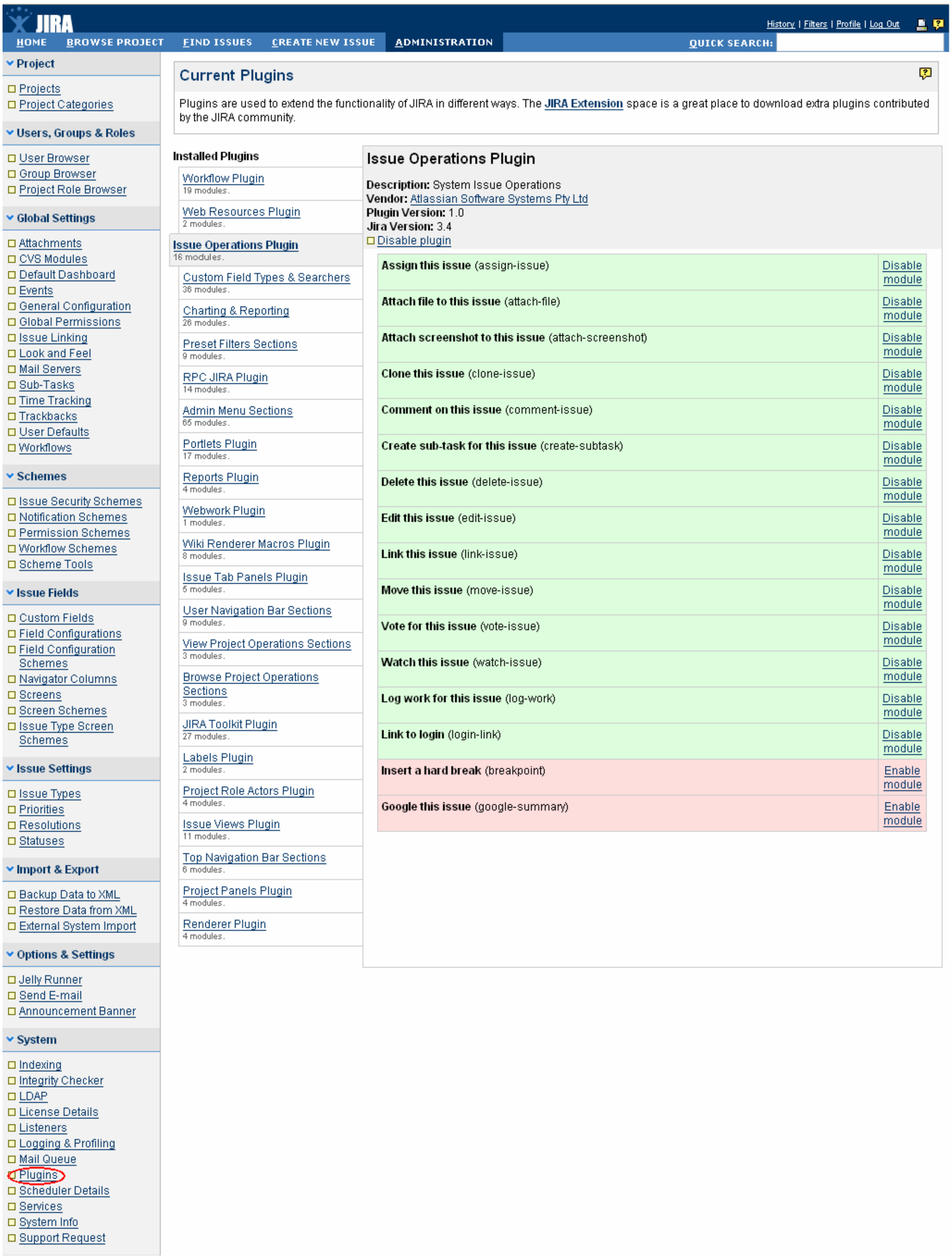
11. **Pluggable Issue Navigator Views** — Issue Navigator views show results of a search in various formats. All built-in Issue Navigator views (e.g. Excel, Word, RSS) have been converted to plugins. This improvement creates the following advantages:
    - It is much easier to customise Issue Navigator views to your needs. For example, you can change the way that issue information is exported to MS Word.
    - By building a new plugin, you can show the results of a search in any format you wish.
12. **Pluggable Single Issue Views** — similar to Issue Navigator Views, the single-issue views (Word, XML) have been turned into plugins. This provides the ability to customise how the issue is exported to various formats, and to add custom export formats.
13. **Issue Operations turned into plugins** — all issue operation links ('Assign Issue', 'Attach File', 'Edit Issue') have been turned into plugins, which allows the JIRA Administrator to easily disable unwanted operations. For example, if you do not need the clone issue functionality, simply disable the 'Clone Issue' operation.

To see a list of all new features and improvements — ask JIRA!

^Top

Issue Operations plugin

To remove an issue operations link (e.g. **Assign this issue**), simply navigate to 'Plugins' (in the 'Adminstration' menu) and click 'Disable module':



JIRA 3.7 Upgrade Guide

> Once you have upgraded to JIRA 3.7, downgrading to a previous version is not a straightforward task and is not recommended.

JIRA 3.7 Upgrade Notes

This page lists a few things to be aware of when upgrading from previous releases of JIRA to JIRA 3.7. To perform the actual upgrade, see the upgrade documentation.

Note: If you are upgrading from a pre-3.6.5 release, please also refer to the relevant JIRA 3.x Upgrade Guides.

> Please note that JIRA 3.7 requires JDK 1.4 or above. Support for JDK 1.3 has been discontinued.

> Please note that some new functionality will not be available if you are running JIRA on WebLogic or Orion. The List All Filtersportlet will not be able to fetch the issue counts for each issue. The new 'Charting' View will also be unavailable. The support for WebLogic and Orion will be added in JIRA 3.7.1.

Database Schema Changes

Due to the upgrade of HSQLDB, and to improve compatibility with Firebird and Frontbase, various database tables and columns have been renamed. For more details on the changes please see the JIRA 3.7 Database Schema Changes document.

Therefore, the easiest way to upgrade to JIRA 3.7 is to follow the Upgrading JIRA safely instructions.

If in the past, instead of performing an XML backup and restore, you have been upgrading by "pointing" new version of JIRA at an old database, this is still possible, however the procedure is more complicated. You will need to use SQL scripts to perform database schema changes. For more information please see the SQL Scripts for 3.6.x to 3.7 schema upgrade document.

> If you are using HSQLDB with JIRA, you must follow Upgrading JIRA safely instructions (i.e. perform a full XML backup and restore from XML), as simply copying the `.script` file will not work. The format of the `.script` file has changed between the HSQLDB versions, and therefore, copying the `.script` file will result in the following error on startup.

Request Context Changes

In order for plugins, customfields and portlets to function better outside of a web-context (e.g.: displaying a customfield in an e-mail), all direct references to the HttpServletRequest have been replaced by a VelocityRequestContext. If you have deployed your own plugins, customfields or portlets that use the HttpServletRequest directly (i.e.: any references to `${req}`) than they should be changed to use the new `${requestContext}` object. The `${requestContext}` is an implementation of the `VelocityRequestContext` interface.

Currently the `${requestContext}` supports the following properties:

- `${requestContext.baseUrl}` - Returns the same as HttpServletRequest.getContextPath() or the base URL configured in your JIRA instance if no HttpServletRequest is available
- `${requestContext.requestParameters}` - Returns an implementation of `RequestContextParameterHolder` or null if no HttpServletRequest is available
- `${requestContext.requestParameters.servletPath}` - Returns the same as HttpServletRequest.getServletPath()
- `${requestContext.requestParameters.requestURL}` - Returns the same as HttpServletRequest.getRequestURL()
- `${requestContext.requestParameters.queryString}` - Returns the same as HttpServletRequest.getQueryString()

Integrity Checks

In JIRA 3.7 Database Integrity Checks (available from the Administration section) have been re-written to run as multiple transactions, which increased the throughput of the system while the checks are running. In large JIRA 3.6 (and earlier) installations, integrity checks could cause database lock escalation and stop users from performing operations (e.g. viewing issues).

Please note, that due to the change, each integrity check became about 10% slower.

As integrity checks are quite database intensive operations, it is still recommended to run them during off-peak hours (i.e. while the system is not under heavy load).

Change of commentLevel to groupLevel in the Comment and TransitionWorkflow jelly tags

We have changed the AddComment and TransitionWorkflow jelly tag attribute that specifies the group visibility level from 'commentLevel' to be 'groupLevel'. If you have existing jelly tags that use this attribute it will need to change. This was done so that we could introduce the 'roleLevel' attribute which allows you to specify a project role based visibility. Only one of the two attributes can be specified at a time.

Change of level to grouplevel in the XML view of a Comment

1. We have changed the XML view of a comment, as seen in the XML view of an Issue to contain either a 'grouplevel' attribute or a 'rolelevel' attribute. This attribute defines the visibility level specified on the comment. In the past the 'grouplevel' attribute was simply 'level'. If you have any existing custom code that expects the 'level' attribute in the Comment XML it must change to expect 'grouplevel'.
2. In previous versions of JIRA the XML view of the <comment> tag level attribute was always shown, even if there was no value for the level, it was rendered as an empty attribute. We have changed it so that the attributes themselves (grouplevel and rolelevel) do not display if there is no value.

Change to the RemoteComment object used via SOAP/RPC plugin

The RemoteComment object and therefore the remote SOAP/RPC api has changes to almost all properties. The 'roleLevel' attribute was added and the following attributes have changed:

1. level -> groupLevel
2. datePerformed -> created
3. username -> author

ActionManager removed

The `ActionManager` interface has been removed and its functionality has been delegated to new interfaces. For details please refer to ActionManager Removed documentation

Removal of 'Backend Actions'

1. We have removed the 'Backend Action' `com.atlassian.jira.action.action.WorklogCreate` if you were using this class in a plugin or custom code you will now need to use the `com.atlassian.jira.issue.worklog.WorklogManager` this now has method calls to return worklogs for a given user+issue and also create worklog entries.
2. We have removed the 'Backend Action' `com.atlassian.jira.action.action.ActionCreate` if you were using this class to create comments you will need to modify your code to use one of the create methods on the com.atlassian.jira.bc.issue.comment.CommentService

Issue Events

We have modified the `com.atlassian.jira.event.issue.IssueEvent` class to no longer use GenericValues. The GenericValue representing the comment is replaced by `com.atlassian.jira.issue.comments.Comment` class and the GenericValue representing the worklog is replaced by `com.atlassian.jira.issue.worklog.Worklog` class. If you have a custom listener in a previous version of JIRA this will need to be updated to use the newer IssueEvent class and `com.atlassian.jira.event.issue.IssueEventDispatcher.dispatchEvent(...)` methods.

Renaming of XML export file

By popular request, the XML filename (that is, the default filename when you choose to save the XML view in the Issue Navigator) has been changed from `issuenavigator.jspa` to `SearchRequest.xml`. Should you have any external systems or programs that utilise the exported XML file, please be aware of the changed filename.

Confluence Users Only - Pre 2.2.10 Confluence Must Be Patched To Use JIRA Issues Macro

Unable to render {include} Couldn't find a page to include called: DOC:JIRA 3.7 Link Format Change

JIRA 3.7 Downgrade Notes

Once you have upgraded to JIRA 3.7, downgrading to a previous version is not a straightforward task and is not recommended. Please be aware that in JIRA 3.7 the database schema has changed.

If upgrade to JIRA 3.7 fails, the best way to proceed is to go back to the previous version of JIRA you were using, and to the latest **pre-upgrade** data that you have. The exact steps for doing this depend on how you have upgraded JIRA.

If you have created a new database for JIRA 3.7 by following the Upgrading JIRA safely instructions, you should be able to simply shutdown JIRA 3.7 and bring up the old version of JIRA your were using. The old version should be configured to use its old (unupgraded) database.

If you have upgraded JIRA by pointing JIRA 3.7 to an older database (and ran the SQL Scripts to upgrade the database schema), then you will need to:

1. Create a new database
2. Configure the old version of JIRA you were using to point at the new (empty) database
3. Restore the latest **pre-upgrade** backup that you have
4. Start the old JIRA installation

ActionManager Removed

From JIRA 3.7, the ActionManager has been refactored into several other interfaces, these include the CommentManager, WorklogManager, ChangeHistoryManager, RepositoryManager and IssueTabPanel. The following table is a mapping of the old ActionManager methods to the new refactored ones (including the new java interface the method resides in).

You will notice that the new methods in JIRA 3.7 take in the Issue object as opposed to the GenericValue.

ActionManager method (Pre JIRA 3.7)	Corresponding method (Post JIRA 3.7)	Corresponding Interface
List **getComments**(GenericValue issue, User user)	List **getCommentsForUser**(Issue issue, User user)	CommentManager
List **getWorklog**(GenericValue issue, User user)	List **getWorklogsForUser**(Issue issue, User user)	WorklogManager
List **getChangeHistory**(GenericValue issue, User remoteUser)	List **getChangeHistoriesForUser**(Issue issue, User remoteUser)	ChangeHistoryManager
List **getWorkflow**(GenericValue issue, User remoteUser)	removed	-
List **getActions**(GenericValue issue, User remoteUser)	List **getActions**(Issue issue, User remoteUser)	AllTabPanel
List **getCommits**(GenericValue issue, User remoteUser)	Map **getCommits**(Issue issue, User remoteUser)	RepositoryManager
Email **createEmail**(GenericValue issue, Message mimeMessage)	removed	-
List **getEmails**(GenericValue issue, User remoteUser)	removed	-
List **getPluginModuleActions**(String moduleKey, GenericValue issue, User remoteUser)	List **getActions**(Issue issue, User remoteUser)	IssueTabPanel

JIRA 3.7 Database Schema Changes

Due to the upgrade of HSQLDB, and to improve compatibility with Firebird and Frontbase, various database tables and columns have been renamed.

The table below summarises the changes to the database schema. Please note, that if you have developed any custom utilities which query or modify the JIRA database directly (i.e. without using the JIRA API), please check whether the utilities need to be updated.

Tables

The following database table has been renamed:

OLD TABLE NAME	NEW TABLE NAME
version	projectversion

Columns

The following database columns have been renamed. Their old and new names, as well as the database table they belong to are shown below:

TABLE NAME	OLD COLUMN NAME	NEW COLUMN NAME
notification	type	notif_type
notification	parameter	notif_parameter
mailserver	type	server_type
jiraeventtype	type	event_type
schemepermissions	type	perm_type
schemepermissions	parameter	perm_parameter
fieldlayout	type	layout_type
schemeissuesecurities	type	sec_type
schemeissuesecurities	parameter	sec_parameter
portletconfiguration	position	positionseq

Special note for MS SQL Server

Additionally to the schema changes described above, for MS SQL Server, all columns of type `TEXT` have been changed to `NTEXT` to ensure that international characters can be safely stored.

Possible upgrade problems + solutions

HSQL DB Upgrade

JIRA 3.7 has been upgraded to use HSQL DB version 1.8. HSQL DB is the in-memory database that ships with the Standalone distribution of JIRA.

If you have upgraded to JIRA 3.7 and have tried to copy across the HSQL DB script files from your 3.6.x or earlier instance you will see an error like the following:

```
2006-09-20 16:33:49,858 [core.entity.jdbc.DatabaseUtil] Unable to esablish a connection with the
database... Error was:org.apache.tomcat.dbcp.dbcp.SQLNestedException: Cannot create
PoolableConnectionFactory (error in script file line: 104 Unexpected token: POSITION in statement
[CREATE TABLE PORTLETCONFIGURATION(ID BIGINT NOT NULL PRIMARY KEY,PORTALPAGE BIGINT,PORTLET_ID
VARCHAR,COLUMN_NUMBER INTEGER,POSITION])
 2006-09-20 16:33:49,858 [core.entity.jdbc.DatabaseUtil] Could not get table name information from
the database, aborting.
 2006-09-20 16:33:51,493 WARN [jira.config.properties.ApplicationPropertiesImpl] Exception getting
property 'jira.extension.container.provider' from database. Using default
 2006-09-20 16:33:51,729 ERROR [ContainerBase.[Catalina].[localhost].[/]] Exception sending
context initialized event to listener instance of class
com.atlassian.jira.upgrade.ConsistencyLauncher
 com.opensymphony.module.propertyset.PropertyImplementationException: Unable to esablish a
connection with the database. (Cannot create PoolableConnectionFactory (error in script file line:
104 Unexpected token: POSITION in statement [CREATE TABLE PORTLETCONFIGURATION(ID BIGINT NOT NULL
PRIMARY KEY,PORTALPAGE BIGINT,PORTLET_ID VARCHAR,COLUMN_NUMBER INTEGER,POSITION]))
         at
com.opensymphony.module.propertyset.ofbiz.OFBizPropertySet.getKeys(OFBizPropertySet.java:100)
         at
com.opensymphony.module.propertyset.AbstractPropertySet.getKeys(AbstractPropertySet.java:292)
         at
com.opensymphony.module.propertyset.PropertySetCloner.cloneProperties(PropertySetCloner.java:114)
         at
com.opensymphony.module.propertyset.PropertySetManager.clone(PropertySetManager.java:61)
         at
com.atlassian.jira.propertyset.JiraCachingPropertySet.init(JiraCachingPropertySet.java:411)
         at
com.opensymphony.module.propertyset.PropertySetManager.getInstance(PropertySetManager.java:45)
         at
com.opensymphony.module.propertyset.PropertySetManager.getInstance(PropertySetManager.java:22)
         at
com.atlassian.jira.config.properties.PropertiesManager.loadPropertySet(PropertiesManager.java:79)
         at
com.atlassian.jira.config.properties.PropertiesManager.<init>(PropertiesManager.java:25)
         at
com.atlassian.jira.config.properties.PropertiesManager.getInstance(PropertiesManager.java:35)
         at
com.atlassian.jira.config.properties.ApplicationPropertiesImpl.getPropertiesManager(ApplicationProper
at
com.atlassian.jira.config.properties.ApplicationPropertiesImpl.getStringsWithPrefix(ApplicationProper
at com.atlassian.jira.plugin.JiraPluginStateStore.loadPluginState(JiraPluginStateStore.java:41)
         at com.atlassian.plugin.DefaultPluginManager.<init>(DefaultPluginManager.java:29)
         at com.atlassian.jira.plugin.JiraPluginManager.<init>(JiraPluginManager.java:28)
         at sun.reflect.NativeConstructorAccessorImpl.newInstance0(Native Method)
         at
sun.reflect.NativeConstructorAccessorImpl.newInstance(NativeConstructorAccessorImpl.java:39)
         at
sun.reflect.DelegatingConstructorAccessorImpl.newInstance(DelegatingConstructorAccessorImpl.java:27)
at java.lang.reflect.Constructor.newInstance(Constructor.java:494)
         at
org.picocontainer.defaults.InstantiatingComponentAdapter.newInstance(InstantiatingComponentAdapter.ja
at
org.picocontainer.defaults.ConstructorInjectionComponentAdapter.instantiateComponent(ConstructorInjec
at
org.picocontainer.defaults.InstantiatingComponentAdapter.getComponentInstance(InstantiatingComponentA
at
org.picocontainer.defaults.DecoratingComponentAdapter.getComponentInstance(DecoratingComponentAdapter
at
org.picocontainer.defaults.SynchronizedComponentAdapter.getComponentInstance(SynchronizedComponentAda
at
org.picocontainer.defaults.DecoratingComponentAdapter.getComponentInstance(DecoratingComponentAdapter
```

```
at
com.atlassian.jira.config.component.ProfilingComponentAdapter.getComponentInstance(ProfilingComponent
at
org.picocontainer.defaults.DefaultPicoContainer.getComponentInstance(DefaultPicoContainer.java:298)
at com.atlassian.jira.ComponentManager.quickStart(ComponentManager.java:267)
         at com.atlassian.jira.ComponentManager.start(ComponentManager.java:254)
         at
com.atlassian.jira.upgrade.ConsistencyLauncher.contextInitialized(ConsistencyLauncher.java:25)
         at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3669)
         at org.apache.catalina.core.StandardContext.start(StandardContext.java:4104)
         at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
         at org.apache.catalina.core.StandardHost.start(StandardHost.java:718)
         at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
         at org.apache.catalina.core.StandardEngine.start(StandardEngine.java:442)
         at org.apache.catalina.core.StandardService.start(StandardService.java:450)
         at org.apache.catalina.core.StandardServer.start(StandardServer.java:683)
         at org.apache.catalina.startup.Catalina.start(Catalina.java:537)
         at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
         at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
         at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
         at java.lang.reflect.Method.invoke(Method.java:585)
```

```
        at org.apache.catalina.startup.Bootstrap.start(Bootstrap.java:271)
        at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:409)
```

If you see this error, JIRA will not be able to startup.

Solution

To resolve this problem you will need to 'safely' upgrade JIRA. The detailed instructions for doing this can be found in JIRA's online documentation.

A quick guide on doing this follows:

1. Startup your old version of JIRA, pointing it at your current HSQL DB scripts files
2. [Perform an XML backup of JIRA]
3. Shutdown you old 3.6.x JIRA instance.
4. Startup your new 3.7 instance of JIRA using a new script location

```
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
 username="sa"
 password=""
 driverClassName="org.hsqldb.jdbcDriver"
 url="jdbc:hsqldb:${catalina.home}/database/jiradb37"
 minEvictableIdleTimeMillis="4000"
 timeBetweenEvictionRunsMillis="5000"
/>
```

5. Perform an XML import

SQL Scripts for 3.6.x to 3.7 schema upgrade

Audience	People who are upgrading from pre-JIRA 3.6.x to post-3.7, and cannot use the recommended 'XML backup/restore' upgrade method because it would take too long.

If you are upgrading JIRA by the recommended method, ignore this page.

Background

In general, there are two ways to upgrade JIRA's database, both of which are described in the Upgrading JIRA document:

- **XML backup/restore (recommended)** — doing a full XML export and import into the new database.
- **Connect JIRA to a copy of your old database** — connecting the new JIRA to the old database, and letting it automatically upgrade the database tables.

In 3.7.x, **the 'Connect JIRA to a copy of your old database' method will not work**. If you point JIRA 3.7.x to an older database, JIRA will print a warning and refuse to do anything. This is because a large number of database schema changes were made between 3.6 and 3.7 (see JIRA 3.7 Database Schema Changes) and these changes are too great for JIRA's database engine to upgrade automatically.

So, the **vast majority of users** should follow the XML backup/restore method described in the Upgrading JIRA document.

However, there are a handful of users with large installations, for which a full export/import is impractical as it takes a relatively long time. These users may need to use the 'Connect JIRA to a copy of your old database' method — **This page is intended for these users.** We have provided SQL scripts for each database, which will make the required changes to a 3.6.x database so it can be upgraded without a full export/import.

These scripts will only work on **JIRA 3.6.x** databases (they refer to a table only added in 3.6). If you are upgrading from an earlier release, please:

1. Download JIRA 3.6.5 Standalone
2. Back-up your database, and create a copy to be upgraded to 3.7.
3. Configure it to point to your 3.7 copy of the database
4. (optionally) Edit `atlassian-jira/WEB-INF/classes/jira-application.properties` and set `jira.autoexport=false` to speed up the process.
5. Start JIRA Standalone. By watching the logs (`atlassian-jira.log` or `logs/catalina.out`, you will see JIRA automatically upgrading tables to the 3.6.x format.
6. Proceed with the instructions below.

> ⚠ If you are using HSQLDB with JIRA, you **must** follow the 'XML backup/restore' instructions in the Upgrading JIRA guide, as simply copying the `.script` file **will not work**. The format of the `.script` file has changed between the HSQLDB versions, and therefore, copying the `.script` file will result in the following error on startup.

DB2 upgrade notes

1. Shutdown your JIRA instance
2. Perform a backup of your DB2 database: **db2 backup database sample to /home/db2/backups**
3. Download the following script db2_3.7_migration.ddl and modify the connect statement within the file
4. Execute the script using the following command: **db2 +c -t -v -f db2_3.7_migration.ddl**
   If you see errors like:

```
insert into SCHEMEISSUESECURITIES (select ID, SCHEME, SECURITY, TYPE, PARAMETER from
TMP_SCHEMEISSUESECURITIES)
SQL0100W  No row was found for FETCH, UPDATE or DELETE; or the result of a
query is an empty table.  SQLSTATE=02000
```

   This is OK, it simply means that the inner SQL query did not return any data to be inserted into the new temporary table. This can occur if you are not using certain features in JIRA.

5. Point your new instalation of JIRA 3.7 at your DB2 database and watch for any errors during the statup sequence.
6. If you see any other errors please contact support for further assistance.

PostgreSQL 8+ upgrade notes

1. Shutdown your JIRA instance
2. Perform a backup of your PostgreSQL database **pg_dump -d *database name* > *backup filename*.sql**
   - for example **pg_dump -d jiradb > jiradb_365_14112006.sql**
3. Download the following script postgres_3.7_migration.sql
4. Execute the script using the following command: **psql -Ujirauser -v schema_name=public -d jiradb -f postgres_3.7_migration.sql**
   a. Where -U is the username, -v is the name of your schema -d is the database -f is the location of the script file
5. Point your new instalation of JIRA 3.7 at your database and watch for any errors during the startup sequence.
6. If you see any errors please contact support for further assistance.

Oracle 10g upgrade notes

1. Shutdown your JIRA instance
2. Perform a backup of your Oracle database. There are multiple strategies here, so we will leave this up to your DBA.
3. Download the following script oracle_3.7_migration.sql
4. Connect to SQL*Plus and execute the following script:

```
SQL*Plus: Release 10.2.0.1.0 - Production on Thu Oct 19 12:56:11 2006
Copyright (c) 1982, 2005, Oracle.  All rights reserved.

Connected to:
Oracle Database 10g Enterprise Edition Release 10.2.0.1.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> @/home/oracle/oracle_3.7_migration.sql
```

5. If you see any errors please contact support for further assistance.
6. Point your new instalation of JIRA 3.7 at your DB2 database and watch for any errors during the statup sequence.

Microsoft SQL Server upgrade notes

1. Shutdown your JIRA instance
2. Perform a backup of your SQL Server database: **osql -U *username* -P *password* -Q "BACKUP DATABASE *db_name* TO DISK = *backup_path_and_filename*"**
   - for example **osql -U sa -P secret -Q "BACKUP DATABASE jiradb TO DISK = 'C:\MyBackup.dat'"**

1. Download the following script sqlserver_3.7_migration.sql
2. Execute the script: **osql -U *username* -P *password* -d *db_name* -i mssql_3.7_migration.sql**
   - for example **osql -U sa -P secret -d jiradb -i sqlserver_3.7_migration.sql**
3. If everything goes well the following should be displyed

```
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'NOTIF_TYPE'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'NOTIF_PARAMETER'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'SEVER_TYPE'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'EVENT_TYPE'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'PERM_TYPE'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'PERM_PARAMETER'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'LAYOUT_TYPE'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'SEC_TYPE'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'SEC_PARAMETER'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The COLUMN was renamed to 'POSITIONSEQ'.
Caution: Changing any part of an object name could break scripts and stored procedures.
The object was renamed to 'projectversion'.
```

4. Point your new instalation of JIRA 3.7 at your SQL Server database and watch for any errors during the statup sequence.

Sybase upgrade notes

1. Shutdown your JIRA instance
2. Perform a backup of your SQL Server database
    - for example using **isql** tool

```
1> dump database db_name to "backup_path_and_filename"
2> go
```

3. Download the following script sybase_3.7_migration.sql
4. Execute the script: **osql -U *username* -P *password* -D *db_name* -i sybase_3.7_migration.sql**
    - for example **osql -U sa -P -D jiradb -i sybase_3.7_migration.sql**
5. If everything goes well the following should be displyed

```
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Column name has been changed.
(return status = 0)
Object name has been changed.
(return status = 0)
```

6. Point your new instalation of JIRA 3.7 at your Sybase database and watch for any errors during the statup sequence.

MySQL upgrade notes

1. Shutdown your JIRA instance
2. Perform a backup of your MySQL database: **mysqldump --opt *db_name* > *db_name*.sql**
    - for example **mysqldump --opt jiradb > jiradb_before37.sql**
3. Download the following script mysql_3.7_migration.sql

4. Execute the script: **mysql --user=*username* --password=*password db_name* < mysql_3.7_migration.sql**
   - for example **mysql --user=root --password=password jiradb < mysql_3.7_migration.sql**
5. Point your new installation of JIRA 3.7 at your MySQL database and watch for any errors during the statup sequence.

Attachments

Name	Size	Creator	Creation Date	Comment
File sqlserver_3.7_migration.sql	12 kB	Jed Wesley-Smith	Mar 22, 2007 00:36	
File postgres_3.7_migration.sql	0.9 kB	Justin Koke	Oct 18, 2006 23:08	
File oracle_3.7_migration.sql	0.7 kB	Justin Koke	Oct 18, 2006 23:08	
File db2_3.7_migration.ddl	4 kB	Justin Koke	Oct 18, 2006 20:46	
File mysql_3.7_migration.sql	0.7 kB	Dylan Etkin	Sep 20, 2006 01:02	
File sybase_3.7_migration.sql	0.5 kB	Dylan Etkin	Sep 20, 2006 01:02	

JIRA 3.7.4 Release Notes

JIRA 3.7.4 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is proud to announce the release of JIRA 3.7.4 in Standard, Professional and Enterprise editions. This point release includes 31 bug fixes and improvements, notably:

- **JIRA startup** — speed has been improved for Oracle - JRA-12049
- **Project roles** — a few minor bug fixes.
- **Getting ready for Crowd** — updates to JIRA infrastructure in preparation for integrating with Crowd in JIRA 3.8.

JIRA 3.7.4 can be downloaded here, and of course is free to all customers who purchased their JIRA licence or maintenance within the last 12 months.

If upgrading, please refer to the JIRA 3.7.4 Upgrade Guide.

Not using 3.7? Learn about all the new features you're missing out on!

Weblogic Users
Please note that there is a known Weblogic and Firefox issue that will affect JIRA 3.7.x when using Weblogic and Firefox. See the issue for more detail.

JIRA 3.7.4 includes the following bug fixes.

JIRA Issues (36 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-12128	Wrong selection when using "Group Custom Field Value" while custimzing a Notification Scheme		Resolved	Fixed
	JRA-12041	In Professional, permission scheme page implies that individual users can be assigned permissions (they can't)		Resolved	Fixed
	JRA-12195	Moving issue increments key of subsequently created issue		Resolved	Fixed
	JRA-12014	NPE in 500 page		Resolved	Fixed
	JRA-11514	org.apache.velocity.runtime.exception.ReferenceException: reference : template = templates/jira/issue/table/issuetable.vm [line 3,column 63] : $column.getHtml($celldisplayparams, $issue) is not a valid reference.		Resolved	Fixed
	JRA-11058	Exception should not be logged when invalid duration is entered		Resolved	Fixed
	JRA-12061	StackOverflowError when starting JIRA on Weblogic 8.1 and Orion after an incorrect upgrade		Resolved	Fixed
	JRA-12160	Need to modify trackback documentation			Fixed

				Resolved	
	JRA-12220	Move the Create New Translation JIRA doc to confluence		Resolved	Fixed
	JRA-12100	Quick Search - "updated:-1y,-1m"		Closed	Fixed
	JRA-12871	CVS Log Handler no longer generates Issue Commented notifications		Resolved	Fixed
	JRA-11994	When adding a createOrComment mail handler with no params you get a NPE when the handler tries to handle the mail		Resolved	Fixed
	JRA-12124	CSV Import Wizard does not work with custom fields anymore		Resolved	Fixed
	JRA-12153	Russian: FixForVersion translated incorrectly (again)		Resolved	Fixed
	JRA-12130	"Edit issue" resets the assigned component		Resolved	Fixed
	JRA-12036	Clicking Printable link in Issue Navigator then going back breaks the Filter		Resolved	Fixed
	JRA-12015	Issue Navigator should better handle mistyped ids		Resolved	Fixed
	JRA-12049	JIRA startup for 3.7.x is slow against some databases		Resolved	Fixed
	JRA-12113	Signup link visible when external user and/or password management is ON.		Resolved	Fixed
	JRA-12060	Guard project role group membership edits by the global permission Browse Users		Resolved	Fixed
	JRA-12107	CLONE -Error with possible Watching Portlet Configuration		Resolved	Fixed
	JRA-12086	Entering large values for number of issues to display for a portlet causes exception		Resolved	Fixed
	JRA-11956	Exception is thrown when editing Project Role Memberships with Oracle		Resolved	Fixed
	JRA-12174	Default project roles not populated via SOAP upon project creation		Resolved	Fixed
	JRA-12067	When you choose to create a Word document from the issues, JIRA creates one Word table per issue. The tables created in the Word document no longer have their lines drawn out, ie the lines are now invisible (previously, the lines were black, thick lines)		Resolved	Fixed
	JRA-12082	Assign Users to Project Role handles case sensitivity in username wrong - association that cannot be deleted		Resolved	Fixed
	JRA-12155	Deleting project role "breaks" workflow condition page		Resolved	Fixed
	JRA-12081	On 500page.jsp, only show services info to admins		Resolved	Fixed
	JRA-12018	red or green color background around sub task number is missing/incompatible in Internet Explorer 6.0 and 7.0		Resolved	Fixed
	JRA-11860	View User throws a NullPointerException when using Crowd (0.3.3 and below)		Resolved	Fixed
	JRA-12066	Comment dates don't display properly in 3.7.3		Resolved	Fixed
	JRA-12133	NPE in ProjectActionSupport when moving issue before visiting its View Issue page - does not affect normal usage		Resolved	Fixed
	JRA-12148	Component and Versions displayed on the manage links or attachment screens are wrong		Resolved	Fixed

	JRA-12184	Release Notes don't escape HTML special characters in TextArea		Resolved	Fixed
	JRA-11825	Edit Transition page throws Exception if name contains invalid characters but still updates the transitions name		Resolved	Fixed
	JRA-12052	Update the caching library needed for crowd		Resolved	Fixed

JIRA 3.7.4 Upgrade Guide

Upgrading from JIRA 3.7.3 to 3.7.4

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.7.2 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.7.3 Release Notes

JIRA 3.7.3 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Recommended Upgrade
JIRA 3.7.3 contains a security update and is highly recommended, especially for instances of JIRA that are accessible via the Internet.

Atlassian Software Systems is proud to announce the release of JIRA 3.7.3 in Standard, Professional and Enterprise editions. This point release includes 15 bug fixes and improvements, notably:

- **Excel formatting** has been rectified (JRA-11928, JRA-8899).
- **French translations** have been rolled back (temporarily) to pre-3.7.1 (JRA-11973, JRA-11873).
- **Security Update** - a problem was fixed where, at worst, a malicious user could indirectly email (and obtain a list of) other users. No other project information could be leaked, apart from the users' emails. This bug affects all previous versions.

JIRA 3.7.3 can be downloaded here, and of course is free to all customers who purchased their JIRA licence or maintenance within the last 12 months.

If upgrading, please refer to the JIRA 3.7.3 Upgrade Guide.

Not using 3.7? Learn about all the new features you're missing out on!

Weblogic Users
Please note that there is a known Weblogic and Firefox issue that will affect JIRA 3.7.x when using Weblogic and Firefox. See the issue for more detail.

JIRA 3.7.3 includes the following 15 bug fixes and improvements.

JIRA Issues (15 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-11204	CreateOrCommentHandler: Attachment with invalid filename causes loop		Resolved	Fixed
	JRA-11175	File names in attachments are truncated just before the ";" character		Resolved	Fixed
	JRA-11950	When comments that are restricted to Roles are deleted, their body appears in change history.		Resolved	Fixed
	JRA-11840	Fix implementation of CustomFieldImpl.compare(Issue, Issue) method		Resolved	Fixed

	JRA-11963	Outdated maven repository url		Resolved	Fixed
	JRA-11928	Excel export is not formatted correct		Resolved	Fixed
	JRA-11873	French I18n : Issue is now a "Problème" !		Resolved	Fixed
	JRA-11973	Can't edit general configuration with French locale		Resolved	Fixed
	JRA-11974	Button titles are hard-coded in English on manageversions.jsp		Resolved	Fixed
	JRA-8899	Export to Excel doesn't export all records unless you are on Page 1		Resolved	Fixed
	JRA-11546	CreateIssue do not set Reporter to specified value		Resolved	Fixed
	JRA-10804	SOAP's UserService::createUser() should add user to all groups with USE permission		Resolved	Fixed
	JRA-11999	Add XFire (Crowd) dependency libraries and adjust configuration file to have stubbed out Crowd configurations.		Resolved	Fixed
	JRA-11992	Change the description of the global Browse Users permission		Resolved	Fixed
	JRA-11906	Screenshot paste in Firefox on mac os x fails		Resolved	Fixed

JIRA 3.7.3 Upgrade Guide

Upgrading from JIRA 3.7.2 to 3.7.3

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.7.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.7.2 Release Notes

JIRA 3.7.2 Release Notes

> **Recommended Upgrade**
> This upgrade is strongly recommended for all users of JIRA 3.7.x as it contains a fix for a critical search indexing issue. Any users of JIRA 3.7 or 3.7.1 should upgrade immediately.

Atlassian Software Systems is proud to announce the release of JIRA 3.7.2 in Standard, Professional and Enterprise editions. This point release includes 32 bug fixes and improvements, including:

- Most notably, 3.7.2 includes a fix for a critical search indexing issue, which makes it a **highly recommended upgrade** for JIRA 3.7 and 3.7.1 users.
- A few small bugs in the CSV importer have been fixed (JRA-11847, JRA-11842).
- Deleting role members in Sybase now works (JRA-11890).

JIRA 3.7.2 can be downloaded here, and of course is free to all customers who purchased their JIRA license or maintenance within the last 12 months.

Not using 3.7? Learn about all the great new features you're missing out on!

If upgrading, please read refer to the JIRA 3.7.2 Upgrade Guide.

> **Weblogic Users**
> Please note that there is a known Weblogic and Firefox issue that will affect JIRA 3.7.x when using Weblogic and Firefox. See the issue for more detail.

JIRA 3.7.2 includes the following 32 bug fixes and improvements.

JIRA Issues (29 issues)					
Type	Key	Summary	Priority	Status	Resolution
	JRA-11702	Integrity Checker itself dies unexpectedly due to a bug in the Bugzilla importer		Resolved	Fixed
	JRA-11853	Group to Role mapper breaks - URL too long?		Resolved	Fixed
	JRA-11911	Able to add attachements altough session is time out		Resolved	Fixed
	JRA-11381	Unsynchronized HashMap in IssueLevelSecurities class		Resolved	Fixed
	JRA-11899	IssueActionComparator causes a ClassCastException		Resolved	Fixed
	JRA-11836	Create integrity checker for links to non-existing issues		Resolved	Fixed
	JRA-11924	MailFetcherService does not delete mail message if it is unable to forward the mail because of an exception		Resolved	Fixed
	JRA-11452	-Dmail.debug property does not work for POP/IMAP		Resolved	Fixed
	JRA-11861	Doc out of order exception when merging		Resolved	Fixed
	JRA-11835	Improve CSV importer wizard error messages		Resolved	Fixed
	JRA-11847	CSV import wizard implictly ignores field mappings in the configuration file if they are not from the CSV header		Resolved	Fixed
	JRA-6199	Unable to import Comment Author and Comment Date		Resolved	Fixed
	JRA-11842	CSV Import wizard does not check if a summary field has been mapped		Resolved	Fixed
	JRA-11865	Default Jira download should support Tomcat 55 rather than Tomcat 50		Resolved	Fixed
	JRA-11857	Danish Property Files for 3.7		Resolved	Fixed
	JRA-9084	Jira does not work in Arabic		Resolved	Fixed
	JRA-10287	Hide/Show text for collapsible fields are not translated		Closed	Fixed
	JRA-11661	Not Logged In User - The Pie Chart Report does not pass the first step		Resolved	Fixed
	JRA-11832	tooltip of the project portlets priority bar is wrong for issues with no priority		Resolved	Fixed
	JRA-11390	Single letter Project keys fail		Resolved	Fixed
	JRA-11878	SOAP - JiraSoapService.getComments(token, issueKey) NPE		Resolved	Fixed
	JRA-11445	AddComment in SOAP does not validate if the provided group exists.		Resolved	Fixed
	JRA-11676	Change log not updated after attaching files via remote API		Resolved	Fixed

	JRA-11890	Deleting user or group from Role breaks on Sybase (and other column-case-sensitive databases)		Resolved	Fixed
	JRA-11831	Upgrade Standalone to latest Tomcat 5.5.x		Resolved	Fixed
	JRA-11730	User profile shows groups, not roles		Resolved	Fixed
	JRA-11071	Should not allow a user to delete the last group with the global permission administrator		Resolved	Fixed
	JRA-11727	Select component assignee page should display a nice message when no components exist		Resolved	Fixed
	JRA-11888	Group dropdown not in alphabetical order when commenting on issue		Resolved	Fixed

JIRA 3.7.2 Upgrade Guide

JIRA 3.7.2 Upgrade Guide

This page contains specific information you need to know when upgrading from JIRA 3.7.1 to JIRA 3.7.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- 3.7.2 will automatically perform a full reindex when upgrading. For more details please see JRA-11861

JIRA 3.7.1 Release Notes

JIRA 3.7.1 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.7.1 in Standard, Professional and Enterprise editions. This point release includes 34 bug fixes and improvements, including many user interface and consistency fixes. It can be downloaded here.

Not using 3.7? Learn about all the **new features you're missing out on**!

If upgrading from an earlier version please read through the JIRA 3.7.1 Upgrade guide.

> **Weblogic Users**
> Please note that there is a known Weblogic and Firefox issue that will affect JIRA 3.7.x when using Weblogic and Firefox. See the issue for more detail.

JIRA 3.7.1 includes the following 34 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.7.1 Upgrade guide

JIRA 3.7.1 Upgrade Guide

This page contains specific information you need to know when upgrading from JIRA 3.7 to JIRA 3.7.1. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.7 to JIRA 3.7.1.

JIRA 3.6 Release Notes

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

Atlassian is proud to announce the latest release of the award winning issue tracking and project mamagement software - **JIRA 3.6**. This release offers a range of new features and improvements throughout JIRA - from the introduction of custom events to wiki-style link aliasing - along with a number of bug fixes.

As always, this release can be downloaded from the JIRA Download Center - and dont forget to check out the upgrade guide if upgrading from a previous version!

Contents

- New Features
- Improvements
- Bug Fixes
- Upgrading

New Features

To see a full list of new features and improvements added - ask JIRA!

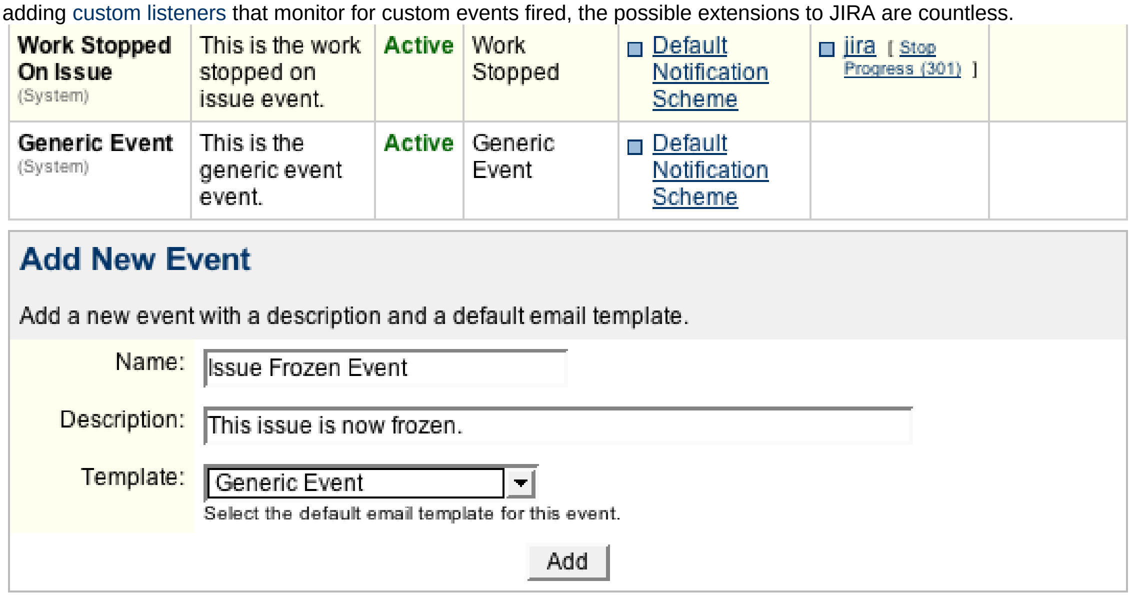
- Custom Events
- Group Picker Custom Field
- Per-Issue Group Notifications & Permissions
- Wiki-style Linking
- "I'm Feeling Lucky" Quick Search
- Collapsible Fields
- Nestable Conditions
- Charting Plugin Updates

Custom Events

JIRA uses an event-listener mechanism to alert the system that something has happened and allow it to perform an action based on that event. In both Professional and Enterprise editions, this release presents the ability to add custom events to the system - providing a pivotal extension point for notification and workflow schemes.

For instance, a custom event can be added to the system and associated with a workflow post-function - fired on completion of the event. A notification scheme can then be configured to email particular recipients once this event has been fired. With custom events, the notification and workflow schemes can be configured extensively to respond to specific custom events added to the system.

Further, by adding custom listeners that monitor for custom events fired, the possible extensions to JIRA are countless.

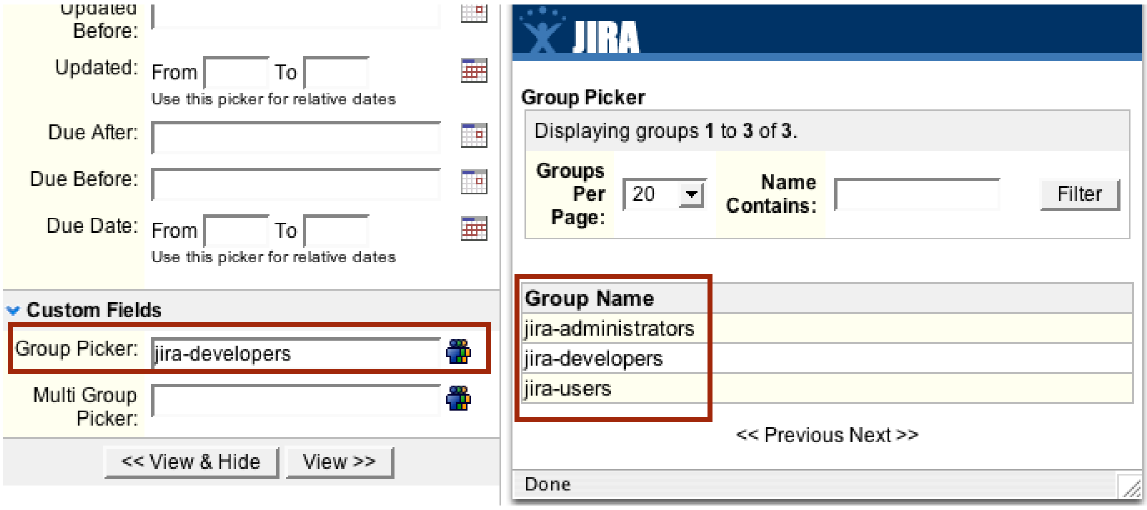


Group Picker Custom Field

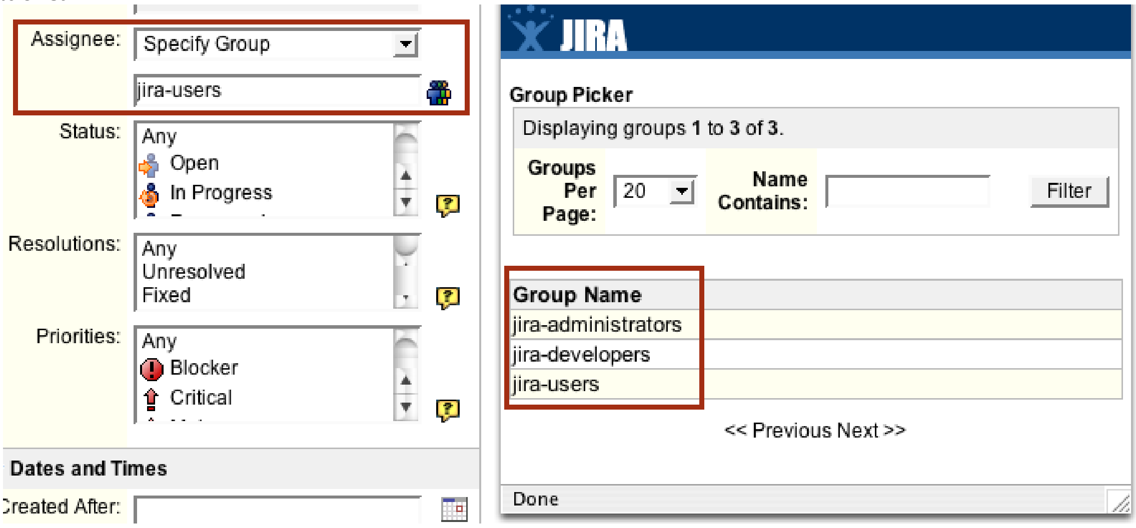
JIRA custom fields have become invaluable tools in extending the data associated with an issue. This release introduces two new custom fields into the fold:

- Group Picker
- Multi Group Picker

The **Group Picker** allows a JIRA-defined group to be associated with an issue while the **Multi Group Picker** allows the association of multiple JIRA-defined groups with an issue. It is possible to use these fields in an issue search as filter criteria in the Issue Navigator.



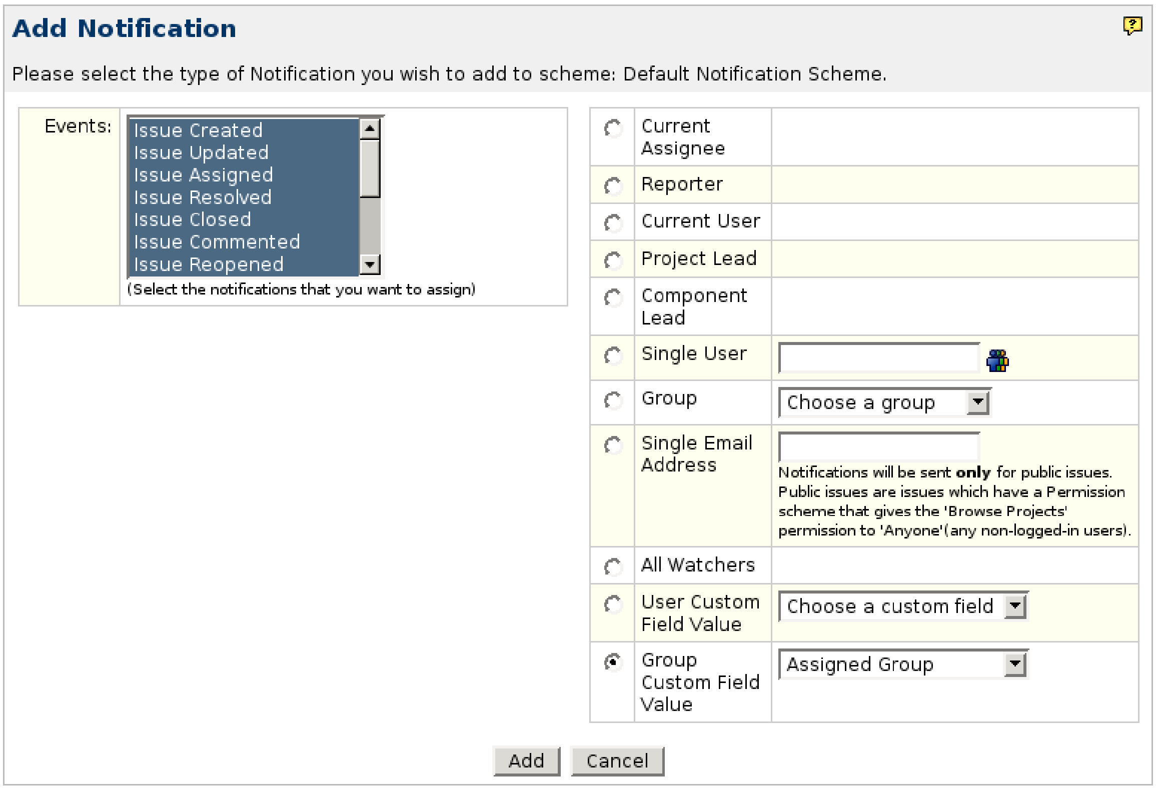
The assignee selector field in the Issue Navigator has also been updated with the Group Picker link - allowing the group to be selected from the available list.



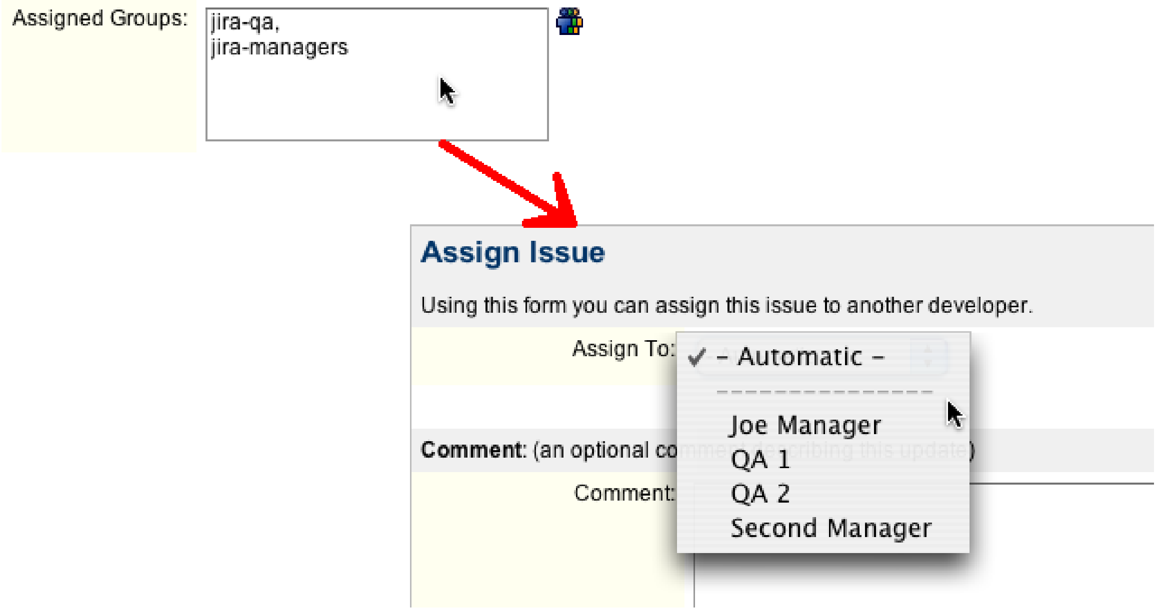
Per-issue Group Notifications and Permissions

Building on the group picker custom field, one can now send notifications to members of a group determined by a custom field.

For example, add an **Assigned Group** custom field, and edit the notification scheme to send all notifications to the group's members:



Now the "Assigned Group" on each issue will be notified of changes.
As with notifications, one can now grant a permission to members of a group(s) selected by a custom field. Continuing our **Assigned Group** example, by granting the **Assigned Group** the **Assignable** permission, the possible assignees of an issue will be the members the **Assigned Group** custom field group:



You can also restrict workflow operations to members of a custom field's group, with a custom field condition.

Preset group lists

Per-issue groups can also be chosen via select-lists, in addition to the group picker. Say you wish to restrict the **Assigned Group** to `jira-managers` or `jira-qa`. Simply create a select-list custom field with these two values, and add the select-list to the notification and permission schemes.

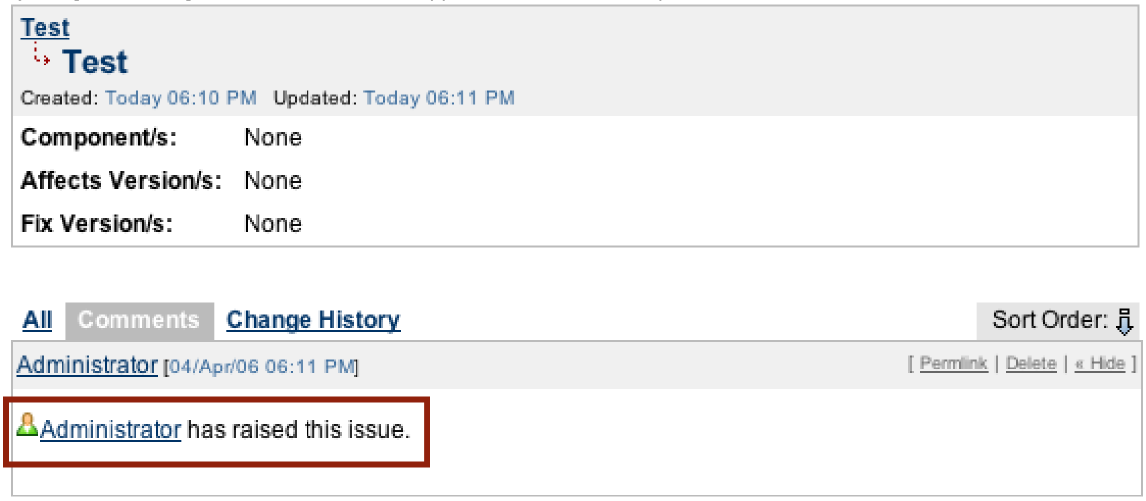
Wiki-Style Linking

Adding to the Wiki-style renderingfunctionality, users can now enrich their description, environment and comment entries with pertinent links to other JIRA data:

- User Aliasing
- Issue Aliasing

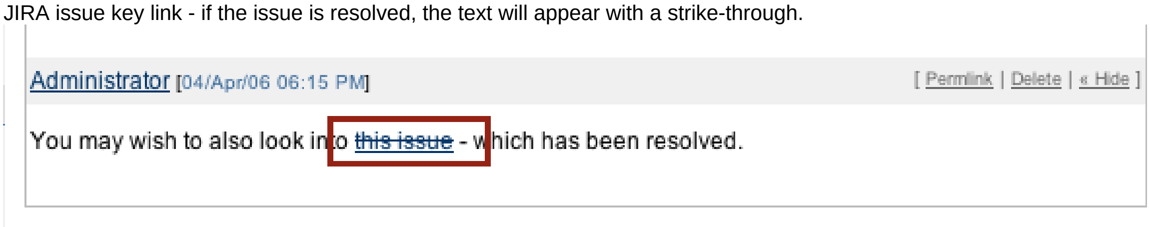
User Aliasing

Using the syntax *[~username]*, the username text will appear linked to the user profile of that user.



Issue Aliasing

Using the syntax *[some text here|TST-1]*, the text *some text here* will appear as a link to the specified issue. This text adopts the behaviour of a regular JIRA issue key link - if the issue is resolved, the text will appear with a strike-through.



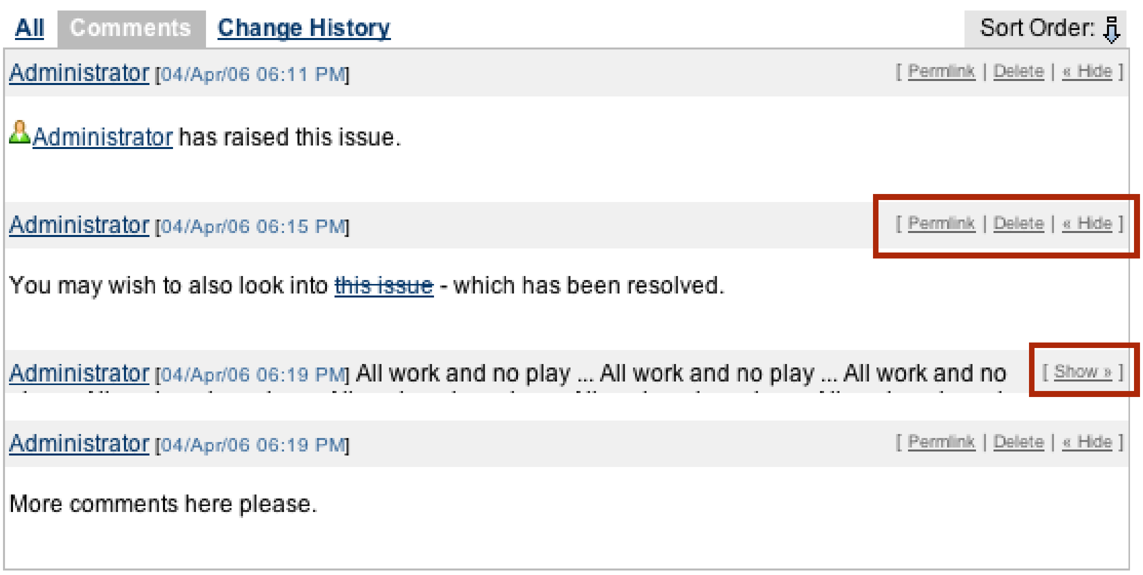
"I'm Feeling Lucky" Quick Search

Letting the user skip the results screen in the Issue Navigator of a search, the 'I'm Feeling Lucky' search presents the user with the first result associated with the search query. This seach can be engaged by pressing **Control + Enter** after submitting the search query to the 'Quick Search' query box.

Collapsible Fields

Enhancing the JIRA user interface, it is now possible to quickly configure the level of detail displayed while viewing an issue through collapsible and expandable issue fields.

The environment, description, individual comment fields and any textarea custom field can be *hidden* or *displayed* by simply clicking on the relevant link for a particular field - allowing fields with large amounts of data to be temporarily hidden while viewing other entries against that issue. JIRA only adds these options to fields that include a large amount of information.

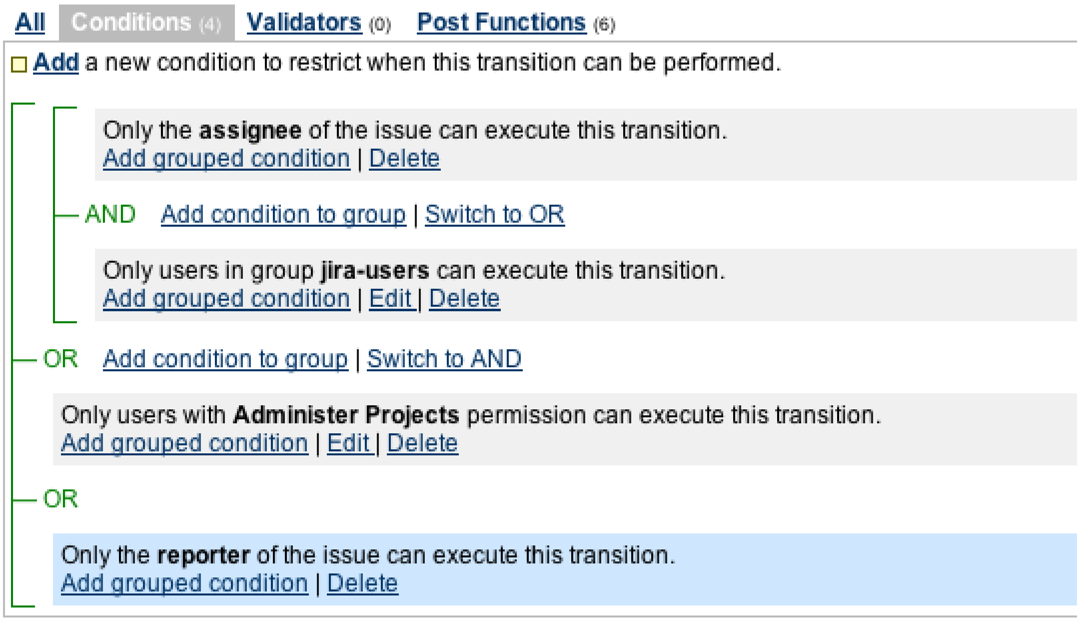


Nestable Conditions

Workflow conditions allow workflow designers the ability to restrict the availability of a workflow transition. The criteria of the condition must be met in order for the workflow transition to become available.

Workflow conditions can now be configured to combine criteria with boolean **OR** statements - allowing condition specification to match the workflow design more closely. For example, a condition can be constructed whereby it is only met if the user is the assignee of the issue **OR** the user is a member of the **jira-users** group.

Extending this concept, more complex condition criteria can be constructed with the ability to *nest* conditions in groups. Each group can be combined with other individual conditions or groups with the boolean **AND** or **OR** statements.



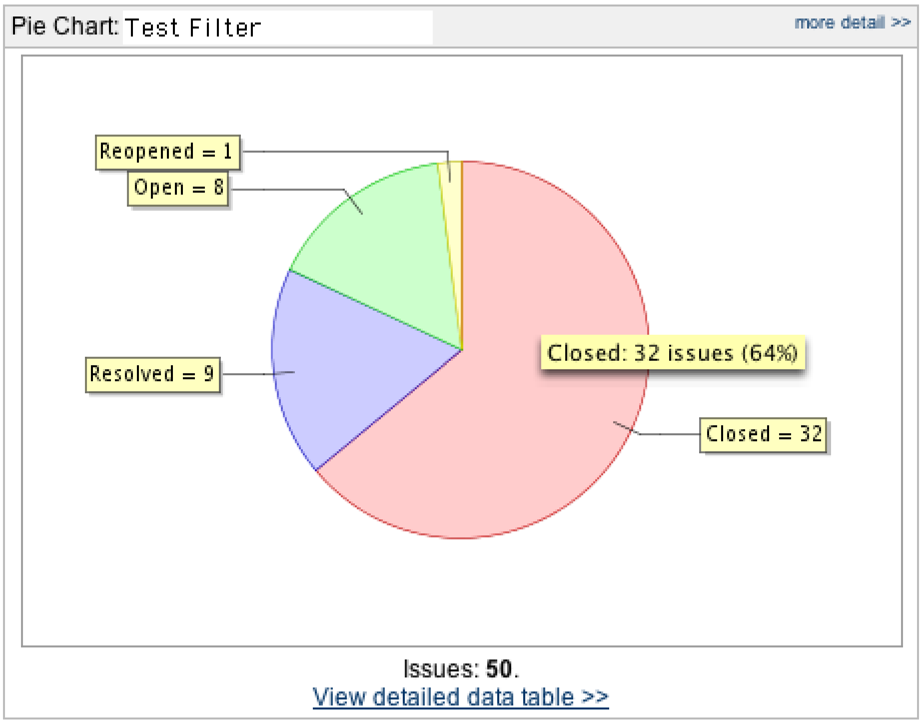
Charting Plugin Updates

The latest version of the Charting Plugin includes two new charting options:

- Pie Chart
- Average-Age Open Issues

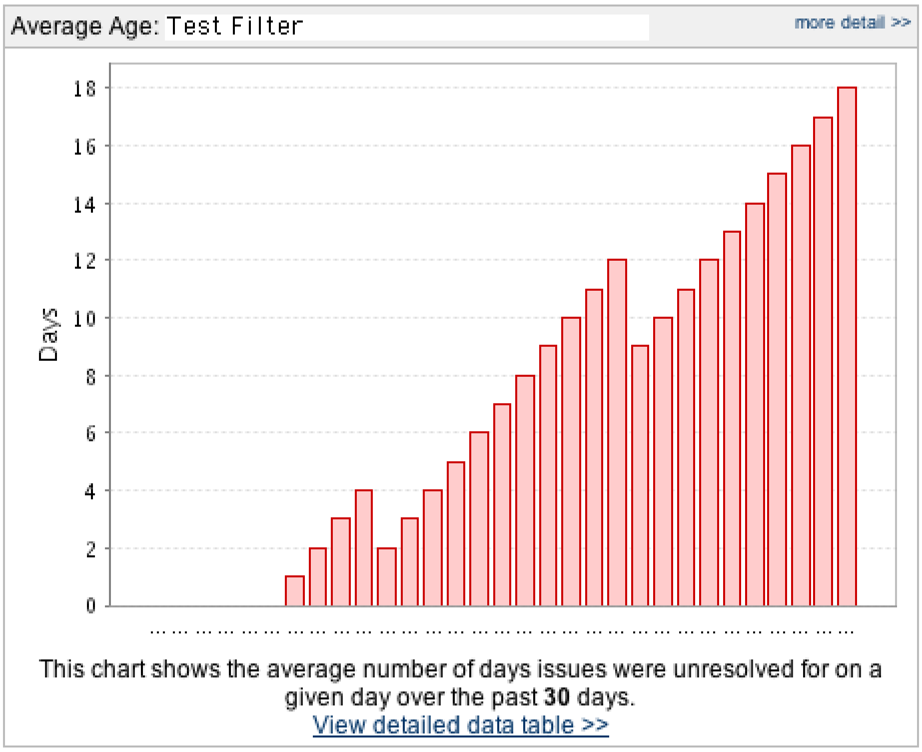
Pie Chart

Reports and portlets can be generated displaying data based on a statistic type (*e.g. Status, Priority, etc.*) of issues from a project or specified filter in pie-chart format.



Average-Age Open Issues

This chart displays the average-open-age of issues over a specified period with a configurable interval. This chart graphically conveys the trend for the average amount of time that issues remain unresolved.



Improvements

- Email Notification & Internationalization
- Performance
- Clone Issue Extensions
- Disable Notification for Bulk Operation
- Banner Visibility
- *... and many more ...*

Email Notification & Internationalisation

JIRA is shipped with over 15 language bundles - allowing the user to configure the language JIRA is displayed in globally and on a per-user basis. The internationalisation coverage now includes the email templates used in issue event notifications. Each template has been converted to allow full translations of the body of the email for all locales.

Taking JIRA into a truly global team environment, JIRA can now send individual email notifications to each recipient in *their user-profile selected language*. Hence, global team members located in regional sites around the world can be updated of issue events and updates with individually-tailored email notifications in their desired language.

This functionality becomes complete with the addition of properties files for the locales in use.

The translation process is greatly supported through the *much appreciated* efforts of the JIRA community. Many thanks to Gerd Gueldenast who has already provided a German translation for the email template properties - which is included in this release.

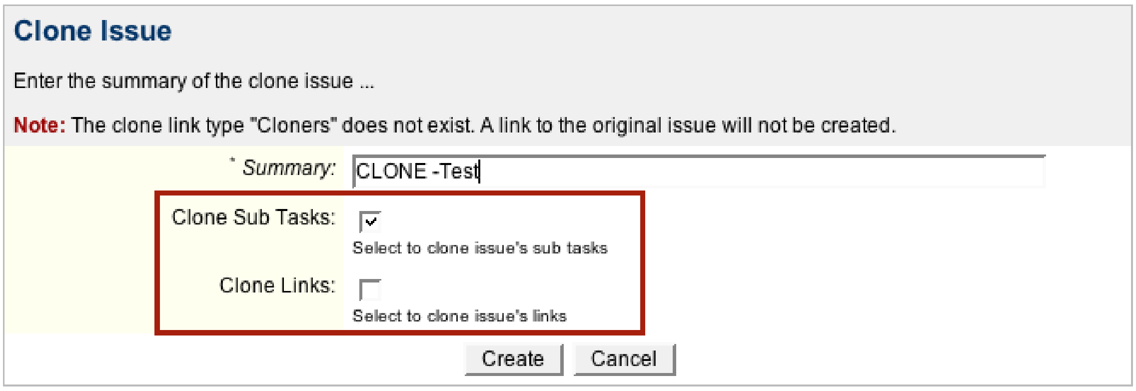
Performance

Improving overall response times while navigating through JIRA, this release introduces a caching servlet for all JavaScript and CSS resources. JIRA will cache these resources on the client system until the instance of JIRA is restarted. In-house testing and initial reports indicate that this change results in a significant performance improvement throughout JIRA.

Clone Issue Extensions

The **Clone Issue** functionality has been expanded with further configuration options. It is now possible to specify the level of detail cloned through:

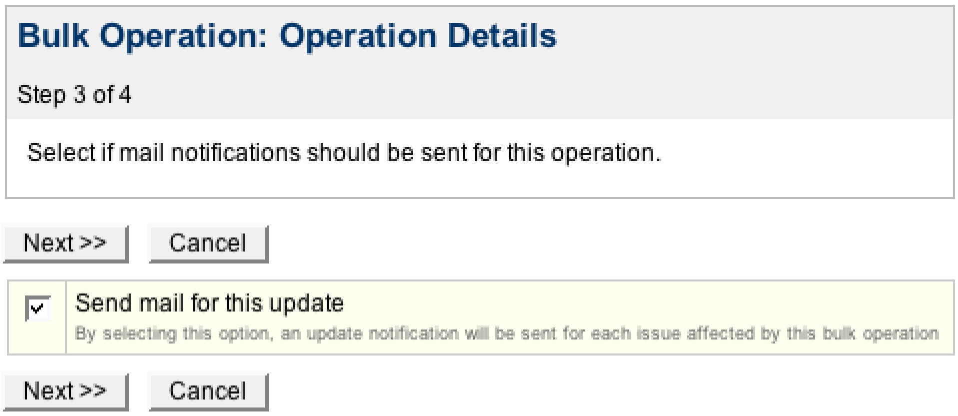
- Clone issue links - links between the clone issue and those linked to/from the original cloned issue will be recreated in the clone issue
- Clone sub-tasks - sub-tasks associated with the original cloned issue will be re-created for the clone issue



Disable Notification for Bulk Operation

JIRA administrators (and project administrators of the selected issues) can now configure whether notifications are sent for a bulk operation - avoiding mass emailing of all changes made during a bulk operation.

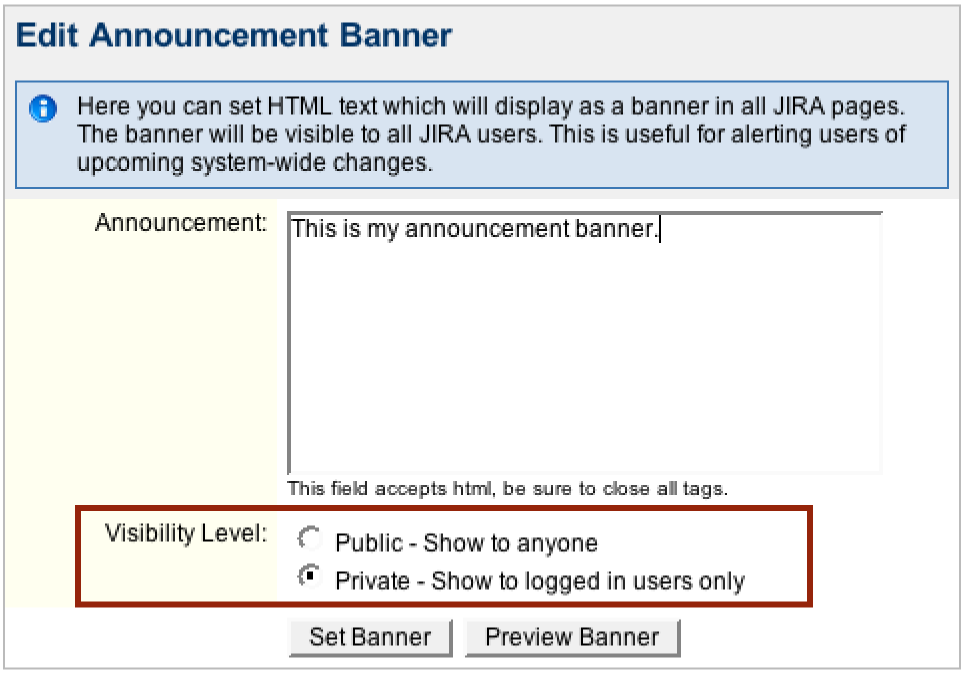
With this configurability, it is possible to complete updates on a collection of issues without generating unwanted email notification noise. The possible scenarios where this option can be applied are many - e.g. adding a new custom field and setting a default value, updating old issues ...



Banner Visibility

The announcement banner allows pertinent information to be displayed on all JIRA pages. This feature has been extended to allow configuration of the banner visibility level:

- **Public** - show the banner to anyone
- **Private** - show the banner to logged-in users only



... and many more ...

A number of other notable improvements included in this release ...

Mail Server & Bulk Precedence

The JIRA mail service can be configured to ignore emails with a *Precedence: bulk* header. This improvement eliminates potential issue/comment generation loops through the mail service from auto-generated emails.

Statable VersionPicker Field

JIRA provides a vast array of portlets that can populate your dashboard with instant access to issue information. The **Version Picker** custom field has been extended to allow inclusion in the 2-Dimensional Filter Statistics portlet - a portlet displaying the results of a search in table format with configurable axes.

Quick Sub-Task Creation Form

JIRA can now be configured so that the quick sub-task creation form is present on the *View Issue* screen at all times - even if the issue does not currently have any sub-tasks.

Issue Link Configuration

The issue link view can be configured to include various issue fields (e.g. issuetype, issuekey, etc.) - providing further details of the linked issue without having to navigate to that issue. Further, it is also possible to specify the sort order for this table.

Bug Fixes

This release includes a number of bug fixes - just ask JIRA to view the entire list!

Upgrading

In order to complete a successful upgrade, please refer to our Upgrade Guides. If you are upgrading from JIRA 3.5.3 please refer to the JIIRA 3.6 Upgrade Guide.

If you are upgrading from a pre-3.5.3 release, please refer to the relevant JIRA 3.x Upgrade Guides.

JIRA 3.6 Upgrade Guide

JIRA 3.6 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.x from JIRA 3.5.x. If upgrading from an older version of JIRA, please go to the complete list of Upgrade Guides, and read the notes for each version you are skipping during the upgrade.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Database Intensive Upgrade Task

To introduce the Custom events to JIRA, it was necessary to upgrade a large data set within JIRA's database for 3.5.x and earlier releases. Depending on the size of your JIRA data the upgrade task (number 150) might get your DBMS to do a lot of work which might take some time. The exact amount of time also depends on the processing power of the machine running JIRA's database.

Please be patient with the upgrade task and do not restart JIRA while the upgrade is in progress. The upgrade task will report on its progress to JIRA's log file as it upgrades your data.

The following is the sample output that the upgrade task will produce. As you can see the upgrade task took roughly 5 and a half minutes to modify over 660,000 records in the database.

```
11:14:09 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Inspecting workflow 'Phone Support
Workflow v.6'.
11:14:10 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Inspecting workflow 'Support Workflow
v.3'.
11:14:10 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Inspecting workflow 'Phone Support
Workflow v.7'.
11:14:10 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Inspecting workflow 'Test'.
11:14:10 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Inspecting workflow 'Copy of Support
Workflow'.
11:14:10 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Inspecting workflow 'Support Workflow
v.4'.
11:14:10 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Inspecting workflow 'Support Workflow'.
11:14:18 INFO [jira.upgrade.tasks.UpgradeTask_Build150]
************************************************************
11:14:18 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating 660453 records in the
'NotificationInstance' table.
11:14:18 INFO [jira.upgrade.tasks.UpgradeTask_Build150] This might take a long time. Please do NOT
stop JIRA.
11:14:18 INFO [jira.upgrade.tasks.UpgradeTask_Build150]
************************************************************
11:14:18 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_CREATED'.
11:15:12 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_UPDATED'.
11:15:51 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_ASSIGNED'.
11:16:10 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_RESOLVED'.
11:16:46 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_CLOSED'.
11:16:57 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_COMMENTED'.
11:18:57 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_REOPENED'.
11:19:17 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_DELETED'.
11:19:26 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_MOVED'.
11:19:31 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_WORKLOGGED'.
11:19:37 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_WORKSTARTED'.
11:19:41 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_WORKSTOPPED'.
11:19:43 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Updating records of type
'NOTIFICATION_ISSUE_GENERICEVENT'.
11:21:23 INFO [jira.upgrade.tasks.UpgradeTask_Build150] Update of 'NotificationInstance' records
finished.
```

Workflow Post Functions

Applies to	users with custom workflow XMLs saved on disk - external to JIRA

JIRA stores its workflows in the database. During the upgrade, these workflows will be upgraded automatically. However, if you have stored your workflows on disk (outside the database), you will need to follow these instructions to upgrade the workflows manually.

Previously, workflow post functions referenced the event to fire through a string value of the event name. All post functions now reference the event through a numeric ID value. As mentioned, all workflows stored within JIRA will be automatically updated. However, all workflows saved to disk - external to JIRA - should be updated manually as follows. The actual workflow XML file should be updated as follows:

For each workflow post function that accepts the event ID as an argument:

1. The value of the **name** attribute of the **arg** tag has to be changed from **eventType** to **eventTypeId**
2. The body of the **arg** tag has to change according to the following table:

Event Name	Event Type Id
created	1
updated	2
assigned	3
resolved	4
closed	5
commented	6
reopened	7
deleted	8
moved	9
worklogged	10
workstarted	11
workstopped	12
genericevent	13

By default, the only post functions that accept event IDs are *FireIssueEventFunctions.* Therefore, unless you have implemented your own custom post function that also deals with events, you will only need to update the arg tags for the *FireIssueEventFunctions* everywhere in the workflows.

For example, *FireIssueEventFunction* for create issue workflow transition looked like:

```
<function type="class">
    <arg name="class.name">com.atlassian.jira.workflow.function.event.FireIssueEventFunction</arg>
     <arg name="eventType">created</arg>
</function>
```

and needs to be changed to:

```
<function type="class">
    <arg name="class.name">com.atlassian.jira.workflow.function.event.FireIssueEventFunction</arg>
     <arg name="eventTypeId">1</arg>
</function>
```

Custom Events

Applies to	users who have **modified JIRA source code or added custom code to define new notification events**. Also of interest to users wishing to define new notification templates

Releases before JIRA 3.6 did not allow users create custom events. If you have modified the JIRA source to add custom events - please follow these instructions.

If you have previously defined a custom event within JIRA - it is necessary to add appropriate entries to the following files:

- `system-event-types.xml`- used to install and upgrade all event types within the system to the new 3.6 event type object.
- `email-template-id-mappings.xml` - maps the event id to an assocaited velocity template file.

The `system-event-types.xml` file requires name and description details of the previously added custom event. For example, if the custom event type "Issue Frozen" was added to the system - the following entry should be added to the XML file:

```
<eventtype id="10000">
   <name>Issue Frozen</name>
   <description>This is the 'Issue Frozen' event type.</description>
   <notificationName>ISSUE_FROZEN</notificationName>
   <eventName>issuefrozen</eventName>
</eventtype>
```

The elements provide the following information:

- id - the new id for the event type. **All custom event types should be added from ID 10000 and above**
- notificationName - the original name for the event as found in the Notification table
- eventName - the origianl name for the event as found in workflows

The `email-template-id-mappings.xml` file requires an entry mapping the new custom event to an associated velocity email template. This mapping is used when a notification is sent for this event. Following from the above example, the following entry would be made:

```
<templatemapping id="10000">
   <name>Issue Frozen</name>
   <template>issuefrozen.vm</template>
</templatemapping>
```

The id should match that of the event as specified in the `system-event-types.xml` The `template` entity should reference the Velocity template to be used in email notifications of this event. A HTML and text version should be provided in the appropriate directory (html or text) at:

`<JIRA>/src/etc/java/templates/email/`

> All custom event types added to the file *system-event-types.xml* should be added with an ID of 10000 and above

Custom Listeners

Applies to	users who have **added custom listeners** to JIRA.

For all users who have **added custom written** listeners to JIRA, it might be necessary to update the listener to follow the new JIRA 3.6 API.

There are two things to look out for:

1. signature change of the *workflowEvent* method
2. change of return type of *getIssue()* method on the *IssueEvent* object

The signature of the method *workflowEvent* in the *IssueEventListener* has changed from:

```
public void workflowEvent(int type, IssueEvent event);
```

to:

```
public void workflowEvent(IssueEvent event);
```

Note: the type parameter has been removed.

If you have implemented *IssueEventListener* directly or have extended *AbstractIssueEventListener* and have overridden the method *workflowEvent*, you will need to change and recompile your listener before installing JIRA 3.6.

In JIRA 3.6, the event type ID can be retrieved by calling the following method on the *IssueEvent* object:

```
Long eventID = event.getId();
```

However, the returned value of the *getId()* method is different to the values of the type parameter that was passed to the *workflowEvent* method. The following table represents these differences:

Event Name	Old ID	New ID
created	0	1

updated	1	2
assigned	2	3
resolved	3	4
closed	4	5
commented	5	6
reopened	6	7
deleted	7	8
moved	8	9
worklogged	9	10
workstarted	10	11
workstopped	11	12
genericevent	-1	13

Also, the *getIssue()* method of the *IssueEvent* object has changed to return an Issue object instead of a *GenericValue* object representing an issue.

Users who have created and added custom listeners must update the listener to now operate with the *Issue* object. For example:

```
Issue issueObject = event.getIssue();
```

As a quick fix, you can modify your listener to use `event.getIssue().getGenericValue()`.

The event type ID constants are now only available from the class *EventType*. Any use of the original constants must be updated to use the *EventType* constants. For listeners that reference an event ID by its numeric value - it is necessary to ensure that the IDs now match those as defined in *EventType*.

Custom permission types

Applies to	users who have modified JIRA source to add new permission types (ie. in addition to the standard 'user', 'group', 'assignee' types).

The SecurityType interface, used to implement permission types ('single user', 'group' etc) has had a `getUsers()` method added. If you have implemented your own SecurityType you will need to implement this. See the source of current implementations (eg. `GroupCF`) for tips.

Plugin upgrades required

As usual, you should check whether the plugins you use are compatible with the new release. Generally, plugins (like the Subversion plugin or JIRA toolkit) need to be upgraded when JIRA is upgraded. See the list of plugins at:

http://confluence.atlassian.com/display/JIRAEXT/Home

JIRA 3.6.5 Release Notes

JIRA 3.6.5 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is proud to announce the release of JIRA 3.6.5 in Standard, Professional and Enterprise editions. This point release includes 8 bug fixes and improvements, in particular improvements in performance and efficiency. It can be downloaded here.

Not using 3.6? Learn about all the **new features you're missing out on**!

If upgrading from an earlier version please read through the JIRA 3.6.5 Upgrade Guide.

JIRA 3.6.5 includes 8 bug fixes and improvements.

JIRA Issues (10 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-11267	Stacktrace: "java.lang.ClassCastException: java.lang.String" when viewing custom fields		Resolved	Fixed

	JRA-11063	"Add a new Issue Security scheme" link in SelectProjectIssueSecurityScheme is empty		Resolved	Fixed
	JRA-11036	Fix MailHandler attachment code - CPU inefficient		Resolved	Fixed
	JRA-11029	Unable to edit custom fields in workflow transition view in "Bulk change" mode		Resolved	Fixed
	JRA-11014	UnSynced map/cache in AbstractSchemeManager.cacheProjectSchemes		Resolved	Fixed
	JRA-10990	"Edit Configuration" on the "Default Configuration Scheme" for a "Custom Field" I created causes a crash (upgrading from 3.6.3 to 3.6.4) for "All Issue Types"		Resolved	Fixed
	JRA-10951	Mystery stacktraces: IllegalArgumentException in CustomFieldTypeModuleDescriptor.getEditHtml		Resolved	Fixed
	JRA-10907	Caching the user's projects improves the speed of Issue Navigator		Resolved	Fixed
	JRA-10223	Ensure transaction thread local gets cleared for every request and service run (potential deadlock fix)		Resolved	Fixed
	JRA-6744	Issue details pane does not stretch properly when reporter name is a long single word		Resolved	Fixed

JIRA 3.6.5 Upgrade guide

JIRA 3.6.5 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.5 from JIRA 3.6.4. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading to JIRA 3.6.5 from JIRA 3.6.4.

JIRA 3.6.4 Release Notes

JIRA 3.6.4 Release Notes

Atlassian Software Systems is proud to announce the release of JIRA 3.6.4 in Standard, Professional and Enterprise editions. This point release includes over 20 bug fixes and improvements, in particular improvements in performance, efficiency and security. It can be downloaded here.

Not using 3.6? Learn about all the **new features you're missing out on**!

If upgrading from an earlier version please read through the JIRA 3.6.4 Upgrade Guide.

JIRA 3.6.4 includes over 20 bug fixes and improvements.

JIRA Issues (25 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-3363	"Default Locale" is not listed under "Installed Locales"		Resolved	Fixed
	JRA-10601	XML-RPC to fix/improve String casting		Resolved	Fixed
	JRA-10199	Need to make move issue in Professional edition show the issue type since we allow issue type schemes in Pro		Resolved	Fixed
	JRA-10700	Link types drop-down on Create Link screen shows "jira_subtask" links		Resolved	Fixed
	JRA-10762	Connection is Closed errors if the ThreadLocal connection gets closed before a commit or rollback.		Resolved	Fixed
	JRA-10833	Ensure the OfBiz Iterator is closed before the transaction is commited (i.e. connection closed)		Resolved	Fixed
	JRA-10308	Giving Manage Watchers Permission to Reporter or Current Assignee allows anyone who can view the watchers list to edit it		Resolved	Fixed
	JRA-10535	Hide/show of Free Text Field Custom Field does not work properly in Issue			Fixed

		Navigator		Resolved	
	JRA-3981	Change error message when user does not have global USE permission		Resolved	Fixed
	JRA-10595	SOAPUtils's transformToStringArray() always returns an empty String array		Resolved	Fixed
	JRA-9418	setArchived and setReleased in RemoteVersion does nothing		Resolved	Fixed
	JRA-7831	Changing Workflow should not change Date Updated or provide option not to		Resolved	Fixed
	JRA-10662	Progress Status bar is broken in IE & Opera		Resolved	Fixed
	JRA-10637	No Manage Filters link in saved filter popup		Resolved	Fixed
	JRA-11080	Version custom fields not available for use in statistics portlets (not statable)		Resolved	Fixed
	JRA-10785	Integrity Checker leaks a database connection if an exception occurs during a check		Resolved	Fixed
	JRA-10695	NullPointerException when sharing a filter		Resolved	Fixed
	JRA-5038	Porlets - cannot specify Portlet name without i18n string and associated property.		Resolved	Fixed
	JRA-8405	Priority levels popup prompts for login		Resolved	Fixed
	JRA-7213	SOAP Interface - getAttachmentNames(...) always returns null		Resolved	Fixed
	JRA-10336	After changing the icon on a custom Issue Type, related custom fields disappeared from the different screens		Resolved	Fixed
	JRA-10494	Bugzilla import looses descriptions of components		Resolved	Fixed
	JRA-10421	NPE rendering work logged email with '0m'		Resolved	Fixed
	JRA-10468	Add comment of using JVM version 1.5_06-b05 in "Installing Java" section of Documentation.		Resolved	Fixed
	JRA-10789	typo in admin projects page		Resolved	Fixed

JIRA 3.6.4 Upgrade guide

JIRA 3.6.4 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.4 from JIRA 3.6.3. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading to JIRA 3.6.4 from JIRA 3.6.3.

JIRA 3.6.3 Release Notes

JIRA 3.6.3 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is proud to announce the release of JIRA 3.6.3 in Standard, Professional and Enterprise editions. This point release includes over 30 bug fixes and improvements, in particular improvements in performance, efficiency and security. It can be downloaded here.

If upgrading from an earlier version please read through the JIRA 3.6.3 Upgrade Guide.

JIRA 3.6.3 includes over 30 bug fixes and improvements.

JIRA Issues (36 issues)					
Type	Key	Summary	Priority	Status	Resolution
	JRA-3349	More Information on files for the Version Control Tab		Closed	Fixed
	JRA-10609	Ability to sort 2DStats portlet by totals and limit results		Resolved	Fixed
	JRA-10526	Support Date custom fields in Mantis 1.0.3+		Resolved	Fixed
	JRA-9090	Wiki Renderer does not HTML encode contents of unknown macros		Resolved	Fixed
	JRA-10276	Custom field is displayed during Bulk Edit and Bulk Transition when it does not have a context for some of the issues.		Resolved	Fixed
	JRA-10317	Bundle JIRA Calendar plugin correctly.		Resolved	Fixed
	JRA-10590	Fix PERF-95 - address Perforce depots with 'gaps' in the commit numbers		Resolved	Fixed
	JRA-10105	jsessionid twice in URL causes Fix and Affects version links to break in issue view screen during session's first page view		Resolved	Fixed
	JRA-10625	Saved Filter is broken in 3.6.3 #159		Resolved	Fixed
	JRA-9296	Indexing intermittently fails with IndexException		Resolved	Fixed
	JRA-10542	Request parameters are not HTML encoded on the 500 page		Resolved	Fixed
	JRA-10504	The CombinedCachingServlet can become a bottleneck under heavy load		Resolved	Fixed
	JRA-10567	Investigate caching 'EditActions' on Bulk Workflow Transition 'edit fields' screen		Resolved	Fixed
	JRA-9933	Digital signature as an attachment		Resolved	Fixed
	JRA-10341	Adding New Version does not show up in Open Issues or via SOAP until Restart		Resolved	Fixed
	JRA-10178	Message custom field produces change history entries		Resolved	Fixed
	JRA-10061	Access to schemeItems in FieldScreenSchemeImpl needs to be synchronized		Resolved	Fixed
	JRA-10487	Upgrade to latest Atlassian Renderer		Resolved	Fixed
	JRA-10263	Description is not shown in full content view of Issue Navigator		Resolved	Fixed
	JRA-10505	Second dropdown list of Cascading Select custom field does not get updated during Bulk Workflow Transition		Resolved	Fixed
	JRA-10304	Fix handling of null users present in database		Resolved	Fixed
	JRA-9336	NPE on viewing saved filters if the user is not logged in		Resolved	Fixed
	JRA-10552	Cancel button in Comment does not have tooltip		Resolved	Fixed
	JRA-8794	Unable to CreateIssue or Comment as another user via SOAP (eg. set reporter)		Resolved	Fixed

	JRA-10434	ClassCastException in com/atlassian/jira/issue/comparator/IssueKeyComparator		Resolved	Fixed
	JRA-10253	Indexing the subtasks is inefficient		Resolved	Fixed
	JRA-10394	NullPointerException when searching on Cascading Select		Resolved	Fixed
	JRA-10518	FieldScreenImpl.getTab(...) throws IndexOutOfBoundsException		Resolved	Fixed
	JRA-10237	Customfields belonging to specific projects are shown when those projects are selected		Resolved	Fixed
	JRA-10488	FilterStatisticsValuesGenerator retains references to managers through static final references		Resolved	Fixed
	JRA-10289	Permlink not translated in e-mails		Resolved	Fixed
	JRA-10392	Full Content (HTML) View doesn't show description		Resolved	Fixed
	JRA-10335	Status names are not translated in the tooltip on the Browse Project page		Resolved	Fixed
	JRA-10272	"Restore Data from XML" doesn't seem to flush SOAP cache		Resolved	Fixed
	JRA-10499	In Firefox, the Home page bar-graph links to Issue Navigator fail		Resolved	Fixed
	JRA-10450	View issue details (Word export) should contain issue status		Resolved	Fixed

JIRA 3.6.3 Upgrade guide

JIRA 3.6.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.3 from JIRA 3.6.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.6.3 from JIRA 3.6.2.

JIRA 3.6.2 Release Notes

JIRA 3.6.2 Release Notes

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

Atlassian Software Systems is proud to announce the release of JIRA 3.6.2 in Standard, Professional and Enterprise editions. This point release includes over 40 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version please read through the JIRA 3.6.2 Upgrade Guide.

JIRA 3.6.2 includes over 40 bug fixes and improvements.

JIRA Issues (47 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-10049	Write functional tests for subversion plugin and automate them in the nightly build		Resolved	Fixed
	JRA-10086	create upgrade task to clean out erroneous statuses in workflow transitions with SubTaskBlockingCondition		Resolved	Fixed
	JRA-9791	Error unarchiving Jira on Mac OS X		Resolved	Fixed
	JRA-10109	Second select box of cascading select custom field not populated correctly during Bulk Edit		Resolved	Fixed

	JRA-10065	Cascading select custom field doesn't pop up in the "Move Issue" screen if the field has a context in source and destination projects.		Resolved	Fixed
	JRA-10167	Bulk Edit allows you to edit issue type even if the workflows are different		Resolved	Fixed
	JRA-9864	OutOfMemoryErrors when running Confluence and Jira on the same server		Resolved	Fixed
	JRA-10006	Tomcat Config: Increase *maxActive* database pool connection limit		Resolved	Fixed
	JRA-10007	Docs: Add documentation on DB connection pool size		Resolved	Fixed
	JRA-10052	Create a script that calculates the number of classes that use GenericValues		Resolved	Fixed
	JRA-10133	move patched jar to build server and distribute to ImaHima		Resolved	Fixed
	JRA-10101	Review 3.6.1 Bugs		Resolved	Fixed
	JRA-10113	Upgrade to latest atlassian-extras		Resolved	Fixed
	JRA-10087	Add doc that *no count* setting should not be checked for MS SQL Server		Resolved	Fixed
	JRA-9377	Unable to set default value in Multi User Picker field		Resolved	Fixed
	JRA-10204	Remove I'm feeling luck from quick search as no-one uses it, and it causes problems on IE 7		Resolved	Fixed
	JRA-10215	CustomFieldManager: getCustomFieldObjects passes issue ID rather than project ID		Resolved	Fixed
	JRA-9928	Status names with apostrophes generate exceptions on *Browse Projects* page		Resolved	Fixed
	JRA-10084	Update the Issue Security Scheme Documentation		Resolved	Fixed
	JRA-7952	Unable to locate documentation reference		Resolved	Fixed
	JRA-9934	Sub-Task blocking condition is not displayed correctly in Transition Condition screen after it has been added.		Resolved	Fixed
	JRA-9711	Excel export layout became worse with the new JIRA version		Resolved	Fixed
	JRA-9812	Project cache refreshed incorrectly after creating project by remote API		Resolved	Fixed
	JRA-10148	Subversion Plugin: Repository URLs with no realtive repository path not working		Resolved	Fixed
	JRA-3969	Services should be disabled during reindexes		Resolved	Fixed
	JRA-9724	Session Timeout/Logout with tabbed dashboard broken		Resolved	Fixed
	JRA-10076	Screenshot attachment applet cause closed session on Websphere 6.0		Resolved	Fixed
	JRA-9961	Session Timeout caused in Bulk Operations		Resolved	Fixed
	JRA-9946	The projects won't appear in browse project view after Bugzilla import		Resolved	Fixed
	JRA-10083	Exporting an issue to word displays descrption twice		Resolved	Fixed

	JRA-10212	TestUpgradeTask_Build56 should fetch the e-mail address from external-link.properties rather than hard code the value		Resolved	Fixed
	JRA-9944	Trackbacks - send outgoing pings to all issues is not reflected in trackback view screen.		Resolved	Fixed
	JRA-10116	JavaScript error on everypage with IE 7		Resolved	Fixed
	JRA-10055	Attachment creation failure causes message handler to loop over message indefinitely.		Resolved	Fixed
	JRA-9324	Groups in group browser encoded with system encoding		Resolved	Fixed
	JRA-10213	Version custom fields will munge their data when going through a move or bulk move		Resolved	Fixed
	JRA-9883	Deleting a User doesn't remove them from the Component Lead		Resolved	Fixed
	JRA-10112	Update Screenshot of the Setup Wizard part in the docs		Resolved	Fixed
	JRA-10176	Update docs to mention that the drop down list restricting comment and work log view only contains user's groups		Resolved	Fixed
	JRA-10030	Adjust layout formatting for HTML left column on Issue Details page		Resolved	Fixed
	JRA-9938	JIRA Docs - Trackbacks - Technical Info section displayed twice.		Resolved	Fixed
	JRA-10111	Remove JiraLuceneFieldCache cache		Resolved	Fixed
	JRA-10103	Type in Danish Email Translation		Resolved	Fixed
	JRA-9719	Update notifications doco		Resolved	Fixed
	JRA-10142	Typo in an error message		Resolved	Fixed
	JRA-10144	Need to synchonize a hashmap in the ofbiz memoryHelper that we use for unit tests		Resolved	Fixed
	JRA-10082	Translation error in notifications for German		Resolved	Fixed

JIRA 3.6.2 Upgrade guide

JIRA 3.6.2 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.2 from JIRA 3.6.1. If upgrading from an older version of JIRA, please go to the complete list of Upgrade Guides, and read the notes for each version you are skipping during the upgrade.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Maximum Active Databased Connections

Applies to	JIRA Standalone users

In version of JIRA before 3.6.2, the maximum number of database connections was limited to 8 by default. If JIRA was used by more than 8 concurrent users or under very haeavy usages, the users could experience delays or JIRA could hang.

In JIRA 3.6.2 the default number of maximum active database connections has been increased to 20. When upgrading to JIRA 3.6.2, please ensure that your database will allow JIRA to establish 20 connections, or decrease this number to desired value. To adjust the number of connections change the value of the `maxActive` attribute of the `jdbc/JiraDS` resource in `config/server.xml` file. JIRA has to be restarted to apply the change.

JIRA 3.6.1 Release Notes

JIRA 3.6.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is proud to announce the release of JIRA 3.6.1 in Standard, Professional and Enterprise editions. This point release includes over 30 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version please read through the JIRA 3.6.1 Upgrade Guide.

JIRA 3.6.1 includes over 30 bug fixes and improvements.

JIRA Issues (32 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-9820	Danish Property Filtes for 3.6		Resolved	Fixed
	JRA-8954	Ensure JIRA unit (and functional tests?) pass on machines with locate set to other than en_* e.g. en_US or en_AU		Resolved	Fixed
	JRA-9905	Contain HSQL warning in the Admin portal		Resolved	Fixed
	JRA-9974	Please enable localization of Constants Help pop-up page		Resolved	Fixed
	JRA-9932	Bug in Find issues - sub tasks field causes error		Resolved	Fixed
	JRA-9967	Invalid workflow action with 'Assignee only' condition and AssignTo field on transition screen		Resolved	Fixed
	JRA-9903	JIRA doesn't build from source		Resolved	Fixed
	JRA-9813	Add log location to 500 page		Resolved	Fixed
	JRA-9942	Issue Links in column view not escaped		Resolved	Fixed
	JRA-9887	Merge this fix into the 3.6 branch		Resolved	Fixed
	JRA-9962	Create link to Services page on Email Handler doc		Resolved	Fixed
	JRA-9993	NullPointerException when component has no lead		Resolved	Fixed
	JRA-9973	Update Traditional Chinese Pack for 3.6.x		Resolved	Fixed
	JRA-10037	Set default email format to text		Resolved	Fixed
	JRA-9889	Version Picker Custom Field can't be CSV imported with value or custom field ID		Resolved	Fixed
	JRA-9811	jira:CreateIssue via Jelly does not allow specifying multiple components		Resolved	Fixed
	JRA-9975	update firebird entitymodel		Resolved	Fixed
	JRA-10027	Synchronize the getTemplateFilename method from TemplateManager		Resolved	Fixed
	JRA-10022	admin.jsp throws Exception in SunOne Application Server 7		Resolved	Fixed
	JRA-9550	When editing workflow transition with no transition view, transition view is set (seemingly) randomly in editor screen.		Resolved	Fixed
	JRA-9894	IndexOutOfBoundsException in Average Age Report and Pie Chart Report		Resolved	Fixed

	JRA-12899	FixVersions parameter is being ignored in the CreateIssue tag		Resolved	Fixed
	JRA-9922	ConcurrentModificationException if you move two portlets on the dasboard at the same time		Resolved	Fixed
	JRA-9971	Update workflow PostFunction does not show all users		Resolved	Fixed
	JRA-9806	NullPointerException when commenting on an issue through edit screen		Resolved	Fixed
	JRA-9957	Need to make a clean way of deploying the jira dev kit		Resolved	Fixed
	JRA-9851	Image thumbnails displayed for (lowercase) png images but not displayed for (uppercase) PNG images		Resolved	Fixed
	JRA-4945	Clicking the Log In link creates ever longer URLs		Resolved	Fixed
	JRA-9969	Minor email-translation issue		Resolved	Fixed
	JRA-9854	Cannot find a key for a text to translate		Resolved	Fixed
	JRA-9991	JIRA help link for "version management" is incorrect		Resolved	Fixed
	JRA-9839	Misspelling in SimpleWorkflowManager error - "woth" should be "with"		Closed	Fixed

JIRA 3.6.1 Upgrade Guide

JIRA 3.6.1 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.1 from JIRA 3.6. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.6.1 from JIRA 3.6.

JIRA 3.5 Release Notes

JIRA 3.5 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems, recipient of the Deloitte Fast 500 Award, is proud to announce the latest release of *the* issue tracking and project management application - JIRA 3.5 (download it here).

The latest release includes over 50 powerful new features and improvements along with over 50 bug fixes.

Upgrade Information
In order to complete a successful upgrade, please refer to our Upgrade Guides. If you are upgrading from JIRA 3.4.3 please refer to the JIRA 3.5 Upgrade Guide.

If you are upgrading from a pre-3.4.3 release, please refer to all JIRA 3.x Upgrade Guides.

Contents

- New Features
- Improvements
- Bug Fixes

New Features

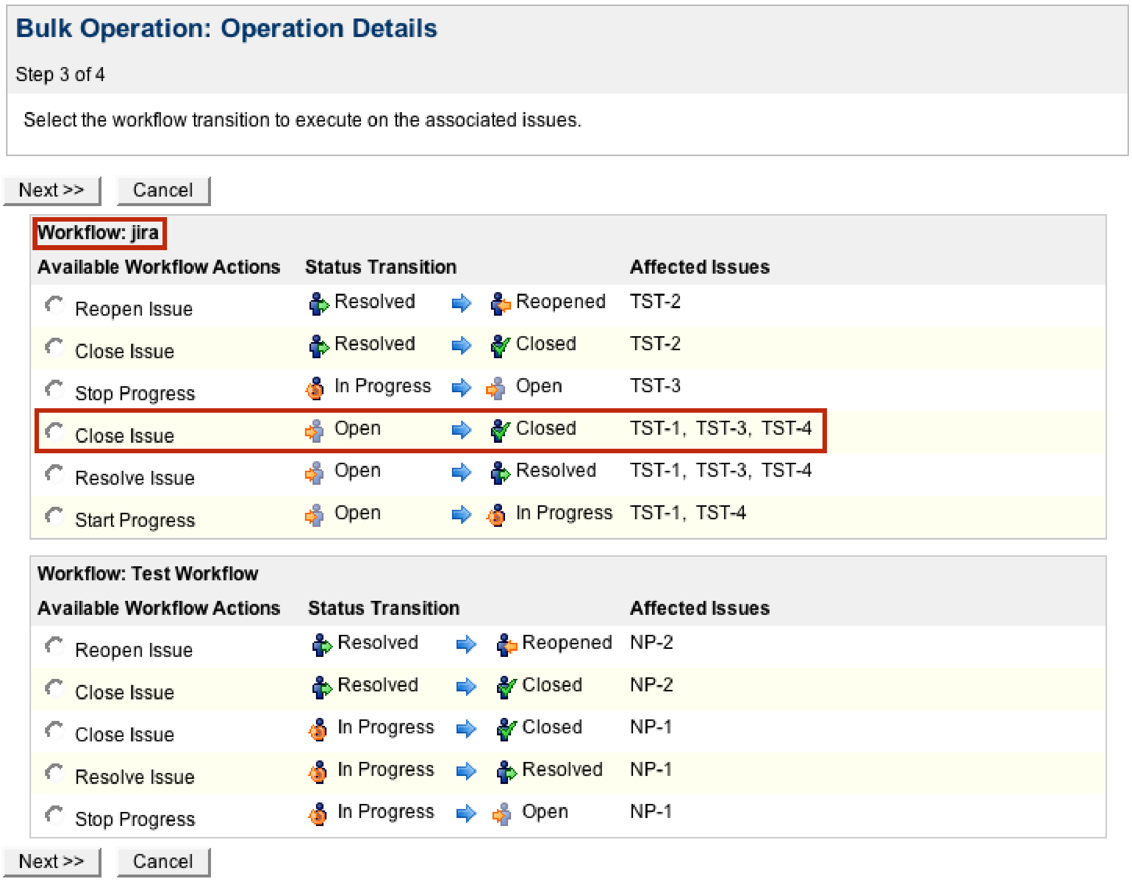
JIRA 3.5 includes an impressive array of new features and improvements - some of which are noted below. To view the entire new feature and improvement list - ask JIRA!

- Bulk Workflow Transition
- FogBugz Importer
- Charting Plugin
- MS Word Export
- JIRA Page Linker Plugin
- Component Lead Notification Type

Bulk Workflow Transition

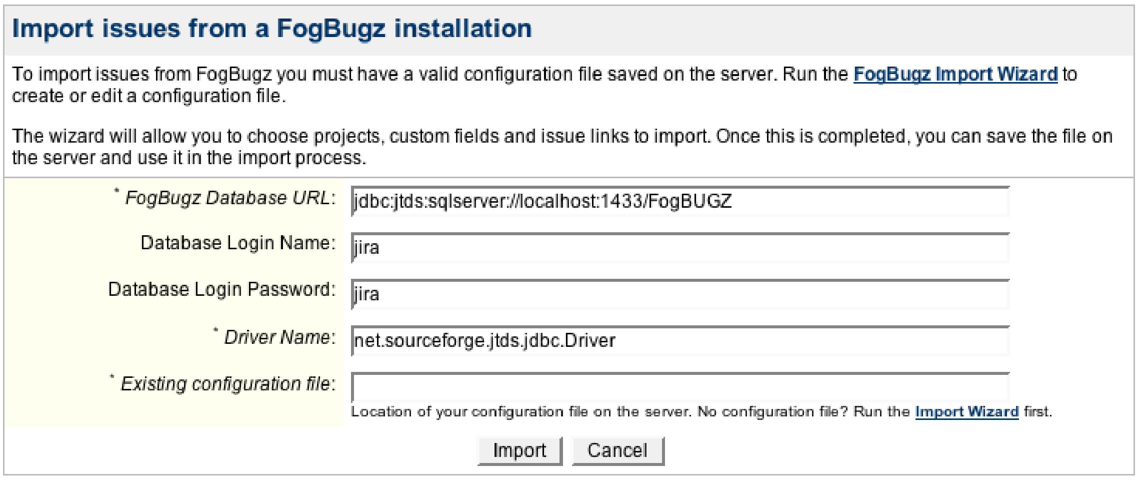
JIRA 3.5 extends the bulk operation capabilities with the addition of **Bulk Workflow Transition** - allowing a selected collection of issues to be advanced through the associated workflow.

The **Bulk Workflow Transition** process is as simple as if transitioning one issue. Once the collection of issues is retrieved through the issue navigator, it is possible to progress the issues through the associated workflow. The associated screen for the transition is displayed to the user - allowing all related fields to be edited as normal. All edits (including comments) are applied to each issue and each issue is advanced to the associated workflow status. All field configurations, workflow conditions, validators and post functions are respected throughout the process.



FogBugz Importer

Users of the FogBugz issue tracking system can now easily import their FogBugz data into JIRA through the new configurable import wizard. The import wizard allows the user specify which projects, custom fields and issue links are to be imported.

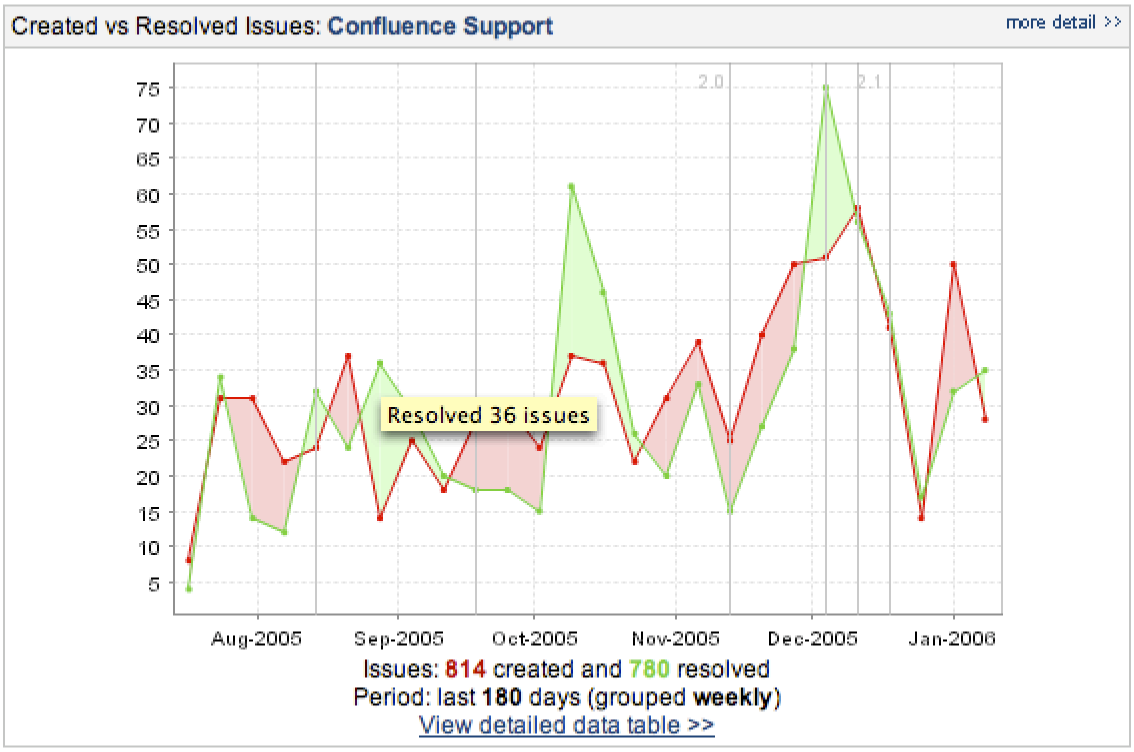


Charting Plugin

The ability to visually represent JIRA data in a graphical form is a key requirement for many JIRA users. With the **Charting Plugin**, users can translate their data into graphs and charts.

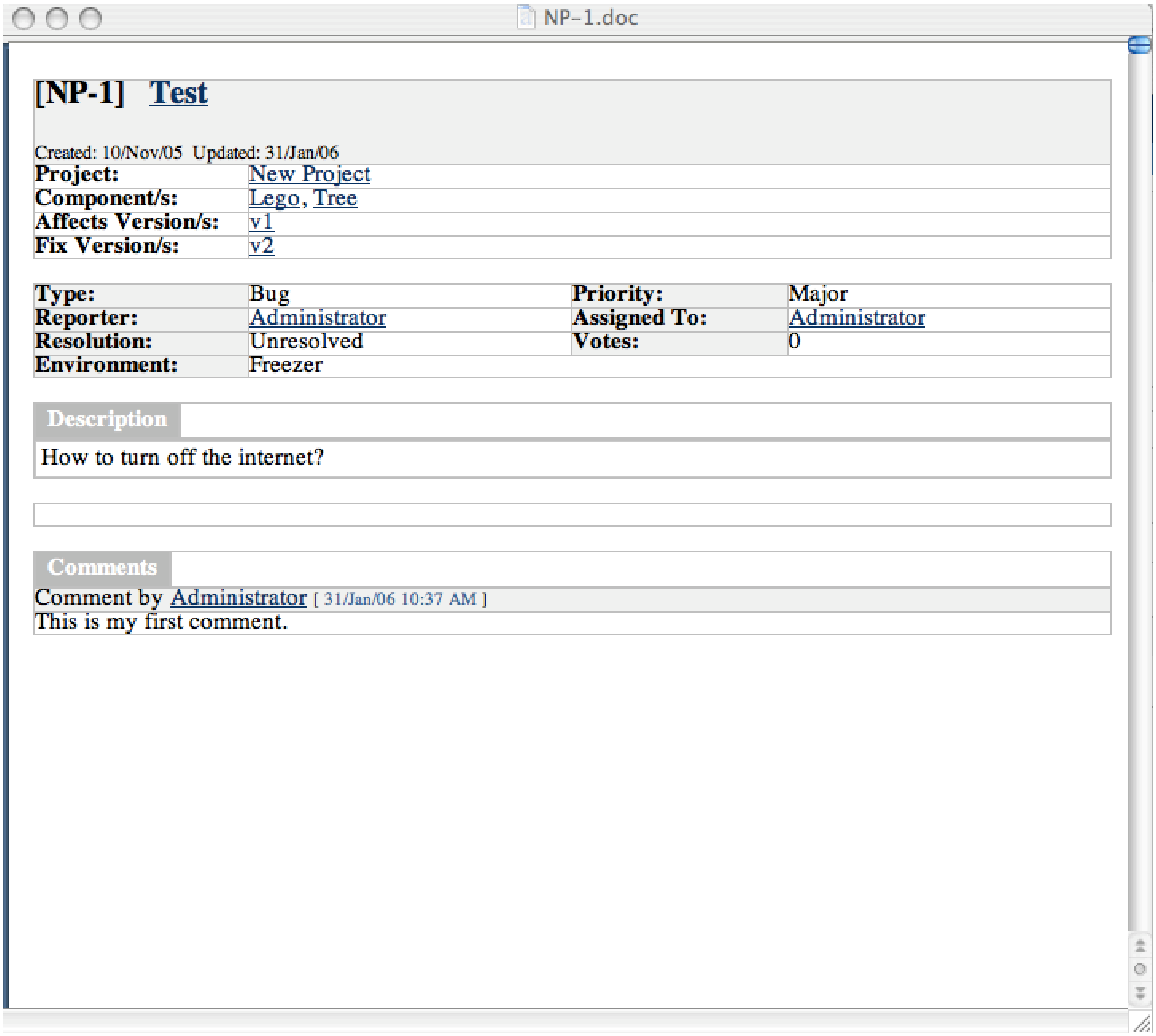
Allowing for more meaningful presentations with greater impact, graphs and charts are more easily absorbed than plain numerical data. Over time, users can also plot trend graphs - with the prospect of extrapolating and interpreting the graphical data to predict future trends and workloads.

The plugin can be downloaded here.



MS Word Export

It is now easier to create Word document presentations, with the ability to export JIRA data to Microsoft Office Word format. It is possible to export an individual issue or the 'Full Content View' of any search to a Word document.

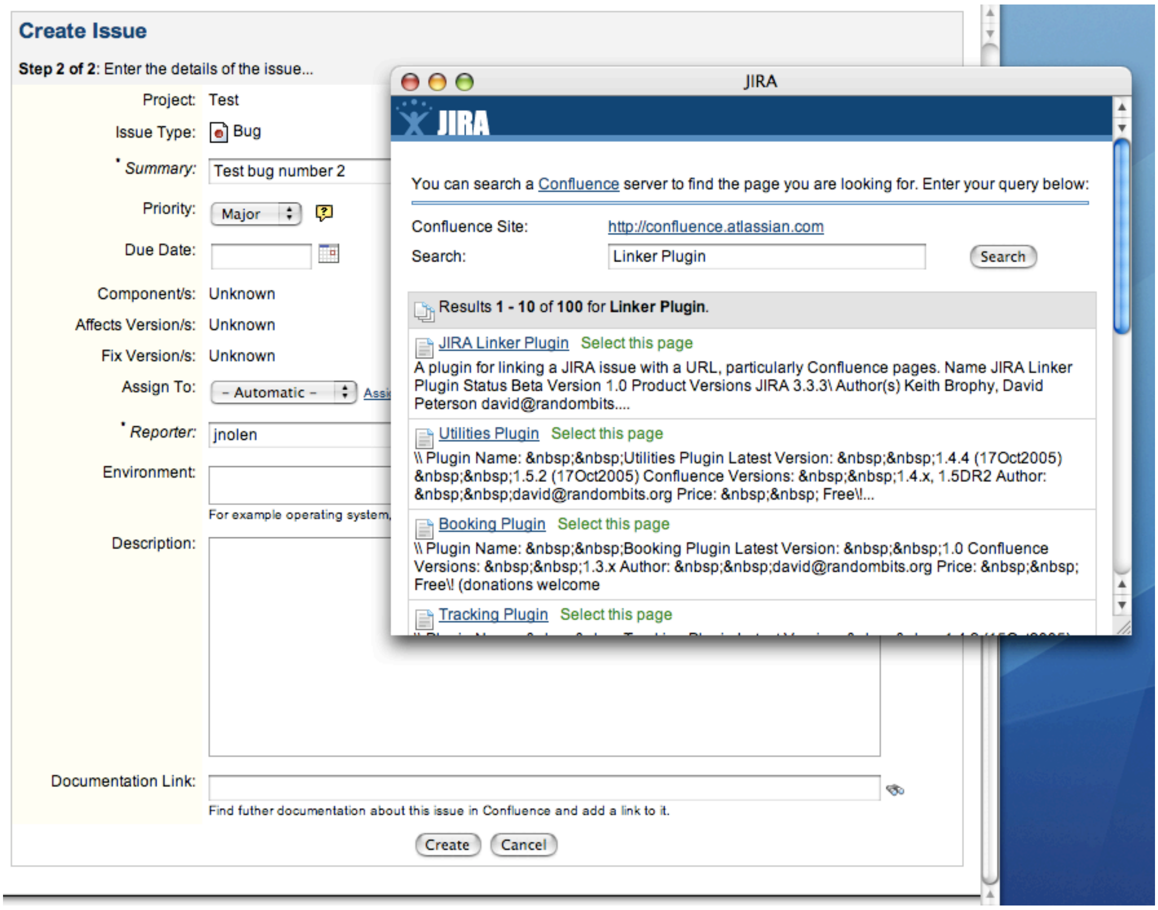


JIRA Page Linker Plugin

Providing further integration between JIRA and Confluence, the **JIRA Page Linker Plugin** provides a custom field plugin for linking a JIRA issue with a Confluence URL.

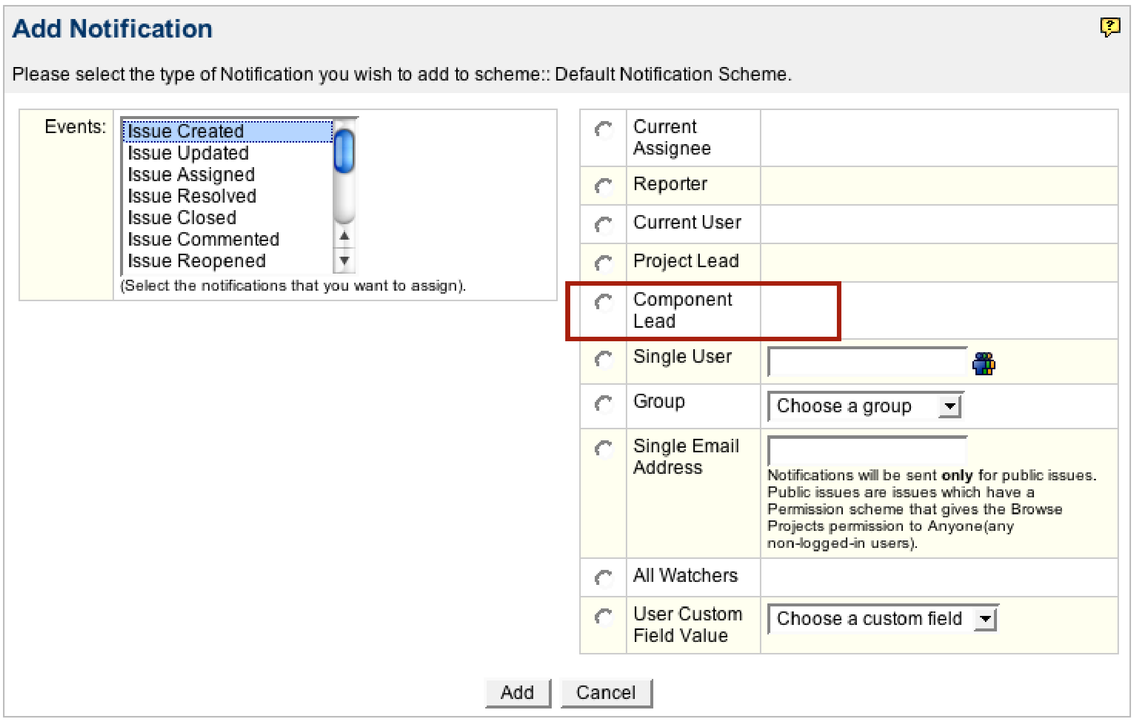
While you are creating or editing a JIRA issue, you can bring up a popup window that will allow you to quickly search a Confluence site for pages you would like to link to this issue. Clicking a link in the popup window will add the page to your new issue.

The JIRA Page Linker plugin can be downloaded here.



Component Lead Notification Type

JIRA 3.5 Enterprise introduces the notification type of **Component Lead**. With this option, notification schemes can be simplified through the specification of the **Component Lead** as a recipient of issue update emails. For each event specified in the scheme, the **Component Lead** will receive an email update - ensuring that the correct users are alerted.

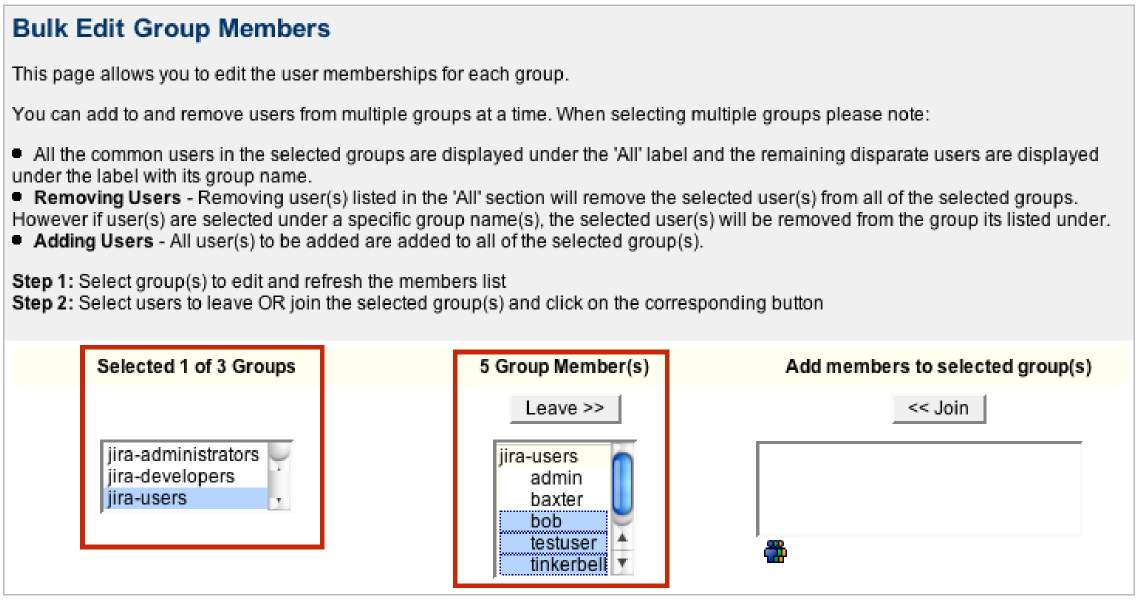


Improvements

- Bulk Assignment of Users to Groups
- Jelly Improvements
- SOAP Improvements
- Configure CSV Delimiter
- Mantis Custom Field Import
- Plugin System Improvements
- Configure Email Address Format
- Internationalisation
- Multi-Select Version Picker Custom Fields in Filters
- Delete Trackbacks
- Configured Navigator Columns in Email Filter Subscription
- Convert Bugzilla Link to JIRA Link

Bulk Assignment of Users to Groups

Group management has been greatly simplified with the addition of **Bulk Assignment of Users to Groups** - allowing multiple users to be added or removed to a group at once.



Jelly Improvements

The Jelly tag **RunSearchRequest** now accepts a filter ID - the ID of the filter to be executed. This tag allows one to execute any saved Search Request and then use its results in any JIRA Jelly script.

For instance, one could define a filter identifying all old/inactive issues, and write a Jelly script to move them to an 'Inactive' state (see the Jelly docs for examples). This Jelly script can be scheduled to run periodically with the Jelly service.

SOAP improvements

This release includes various SOAP improvements - including the ability to retrieve via SOAP:

- a list of general configuration properties - i.e. determine if attachments, time tracking, voting, unassigned issues, sub-tasks, issue linking or watching is turned on/off
- an issue by its ID
- a match count for a search filter - useful to determine how results should be displayed - e.g. full or partial list of results

Configure CSV Delimiter

Some versions of MS Office Excel (e.g. German) save CSV files with separating values using '**;**' instead of '**,**'. The CSV Import Wizard has been improved to allow the delimiter to be specified for a particular import file.

Mantis Custom Field Import

Mantis 0.18+ has a basic custom field implementation. The JIRA Mantis Importer can now import any defined custom fields.

Plugin System Improvements

The ability to create more powerful plugins is now possible through the following improvements:

- Reference downloadable external resources. Additional static files such as images, Javascript or CSS can be served through **Downloadable Plugin Resources**. Further details available here.
- The plugin configuration screen has been improved with the ability to include a checkbox parameter. Further details available [here].
- Servlet Plugin module enables users to deploy Java servlets as part of a plugin. Further details available here.

Maybe these improvements will be of use to the entrants of the Codegeist Competition?

Configure Email Address Format

Previously, it was necessary to stop JIRA and edit a properties file to modify the email address format. JIRA 3.5 now allows this modification to be made through the web interface - without the need to stop the server.

Internationalisation

The **Administration** section of the JIRA User Interface is now fully internationalized. This makes it possible to translate and present the entire JIRA web interface in a particular language, once the appropriate set of language files are included.

Further details on the translation process and how to get involved are available here. The continued support of those users who volunteer their translation skills is greatly appreciated.

Multi-Select Version Picker Custom Field

A new multi-select **Version Picker Custom Field** is now available - allowing this field to store multiple versions related to the associated project. It is also possible to use this field within a search through the Issue Navigator.

Delete Trackbacks

Trackback management has been improved to allow users delete specific trackbacks.

Configured Navigator Columns in Email Filter Subscription

In JIRA Enterprise edition, it is possible to configure which issue fields are displayed to the user for each saved filter. Previously, this configuration was only used throughout the web interface. JIRA 3.5 Enterprise now respects the chosen fields when sending e-mail notifications to subscribers of a filter.

Convert Bugzilla text links to JIRA Issue links

On import, original Bugzilla text links will be linked to the new JIRA issues. This improvement helps ease the migration to JIRA for users who still use the Bugzilla bug IDs.

Bug Fixes

This release includes over 50 bug fixes. To view the entire bug fix list - ask JIRA!

JIRA 3.5 Upgrade Guide

JIRA 3.5 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5 (release notes) from JIRA 3.4.3. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

JIRA 3.5 Jira Service extension

- If you have implemented a custom JIRA service you need to be aware of the following API change.

In JIRA 3.5 the `getName()` and `setName(String name)` methods was added to the `com.atlassian.jira.service.JiraService` interface. This method should return and set the name of the service respectively. The name of the service can be used to identify a service uniquely. (Fixed made due to JRA-8352 bug)

Therefore, if you have implemented this interface, you will need to implement these methods and recompile your service(s) before deploying it into JIRA 3.5. If you have extended a JIRA class instead, e.g. `com.atlassian.jira.service.AbstractService` or `com.atlassian.jira.service.JiraServiceContainer` you do not need to modify your custom services.

Introduction of global **Bulk Change** permission

JIRA 3.5 introduces the global **Bulk Change** permission. This permission governs the ability to execute the bulk change operations:

- Workflow Transition

- Edit
- Move
- Delete

An upgrade task has been added to grant the new **Bulk Change** permission to all groups with the global **JIRA Users** permission.

The JIRA documentation includes further details on this new permission.

> The decision to grant the **Bulk Change** permission should be considered carefully - the permission permits a user to modify a collection of accessible issues at once. For example, in JIRA installations configured to run in 'Public' mode (anybody can sign up and create issues), a user could comment on all accessible issues with the **Bulk Change** and **Add Comments** permission. Undoing such modifications may not be possible through the JIRA UI and may require changes made directly against the database.

CustomFieldPersister changes

CustomFieldPersister is used to store custom field values to database. The methods of this class has been refactored to remove the redundant parameter, `defaultValueMarker`. For example, the create values method went from:

```
void createValues(CustomField field, Long issueId, String defaultValueMarker, PersistenceFieldType
persistenceFieldType, Collection values, String parentKey);
```

to:

```
void createValues(CustomField field, Long issueId, PersistenceFieldType persistenceFieldType,
Collection values, String parentKey);
```

You will need to update and recompile any `CustomFieldType` that you wrote to use this new interface.

VersionCFType Changes

This affects plugin writers who uses the version custom field `VersionCFType`. The change is that previously the Transport Object type was a single `Version` object, but it is now a collection that contains a single `Version` object.

This was done to handle an improved version custom field which can be a mutli-select version custom field as well

JIRA 3.5.3 Release Notes

JIRA 3.5.3 Release Notes

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

Atlassian Software Systems is proud to announce the release of JIRA 3.5.3 in Standard, Professional and Enterprise editions. This point release includes over 20 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version please read through the JIRA 3.5.3 Upgrade Guide.

JIRA 3.5.3 includes over 20 bug fixes and improvements.

JIRA Issues (23 issues)

Type	Key	Summary	Priority	Status	Resolution
	JRA-9691	jira.projectkey.warning and jira.projectkey.description properties not used		Resolved	Fixed
	JRA-9689	Jira says JAVA_HOME contains spaces even if it doesn't		Resolved	Fixed
	JRA-9670	Integrity Checker fails when correcting the default dashboard		Resolved	Fixed
	JRA-9666	When an issue type is not specified the CSV importer grabs the first it sees, but this may not be valid because of issue types per project		Resolved	Fixed
	JRA-9643	Update docs to reflect the renaming of 'Developer Workload'		Resolved	Fixed
	JRA-9640	Add to OS section to Requirments page		Resolved	Fixed

	JRA-9613	Found typo in a file		Resolved	Fixed
	JRA-9586	Bugzilla doesn't import priorities		Resolved	Fixed
	JRA-9582	UpgradeTask 132 fails if "Assign Issue Screen" does not have a description		Resolved	Fixed
	JRA-9578	initiating user detail not properly shown in usercreated email		Resolved	Fixed
	JRA-9575	Permission-Bug in Manage Watcher List		Resolved	Fixed
	JRA-9562	@123,456@ in Wiki renderer results in a text field		Resolved	Fixed
	JRA-9548	Custom field values for multi selects not returned in SOAP		Resolved	Fixed
	JRA-9544	file "\includes\snippets\listbyname.jsp" is missing taglib identifier		Resolved	Fixed
	JRA-9505	Delete component displays erratic message		Resolved	Fixed
	JRA-9476	Workflow cache not updated on project creation.		Resolved	Fixed
	JRA-9465	Update global permissions of the documentation to include teh Bulk Change permission		Resolved	Fixed
	JRA-9452	Last two builds JIRA won't allow setting an issue to unassigned as a Post function in workflow transitions		Resolved	Fixed
	JRA-9435	Add to Upgrade Guide advice that IssueEvent changelog can now be null		Resolved	Fixed
	JRA-9430	Add documentation that specifys that text emails for subscriptions do not behave the same way as html emails		Resolved	Fixed
	JRA-9399	Bulk Move - New security level field values are shown from originating project, not the target project		Resolved	Fixed
	JRA-9394	Security Bug: Deletion of a comment made to jira-developers is visible to all jira-users when viewing change history		Resolved	Fixed
	JRA-9285	Project portlet doesnt remember the [hide] [show>>] settings upon refresh		Resolved	Fixed

JIRA 3.5.3 Upgrade Guide

JIRA 3.5.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5.3 from JIRA 3.5.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.5.3 from JIRA 3.5.2.

JIRA 3.5.2 Release Notes

JIRA 3.5.2 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is proud to announce the release of JIRA 3.5.2 in Standard, Professional and Enterprise editions. This point release includes over 20 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version please read through the JIRA 3.5.2 Upgrade Guide.

JIRA 3.5.2 includes over 20 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.5.2 Upgrade Guide

JIRA 3.5.2 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5.2 from JIRA 3.5.1. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Issue Event Changelog Can Now Be Null

- If you have implemented a custom JIRA Issue Event Listener you need to be aware of the following API change.

In JIRA 3.5.2, the IssueEvent object thrown as a result of an edit operation, **may now return null** from a `getChangeLog()` call. The case where this happens is when a user chooses to edit an issue but only leaves a comment and makes no other changes to the issue. Prior to 3.5.2 no event was fired in this case and this was identified as a bug (JRA-9415) and has since been fixed. Check any calls to getChangeLog() for null.

JIRA 3.5.1 Release Notes

JIRA 3.5.1 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Atlassian Software Systems is proud to announce the release of JIRA 3.5.1 in Standard, Professional and Enterprise editions. This point release includes over 20 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version please read through the JIRA 3.5.1 Upgrade Guide.

JIRA 3.5.1 includes over 20 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.5.1 Upgrade Guide

JIRA 3.5.1 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5.1 from JIRA 3.5. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.5 to JIRA 3.5.1.

JIRA 3.4 and 3.4.1 Release Notes

JIRA 3.4 Release Notes

Atlassian Software Systems, Australia's fastest growing software company, is proud to announce the latest release of *the* issue tracking and project management application - **JIRA 3.4** (download it here). Just over 3 weeks since the final 3.3.x release, **JIRA 3.4** includes some **50** powerful new features and improvements along with over **70** bug fixes.

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Upgrade Information
In order to complete a successful upgrade, please refer to our Upgrade Guides. If you are upgrading from JIRA 3.3.3 please refer to the following document:
http://confluence.atlassian.com/display/JIRA/JIRA+3.4+and+3.4.1+Upgrade+Guide

If you are upgrading from a pre-3.3.3 release please read the following guides also:
http://confluence.atlassian.com/display/JIRA/All+JIRA+3.x+Upgrade+Guides

Features and Improvements:

- Issue Types Per Project
- Renderers
- Clone Portlets
- Issue Operation Plugin
- RSS Improvements
- RPC Searching
- Dynamic Header Banner
- Internationalisation
- Bulk Migration by Issue Type
- Change Parent Issue of Sub-Task
- Multi-User Custom Field
- Trackback Configuration

Contents

1. New Features
2. Improvements
3. Bug Fixes
4. Notes

New Features

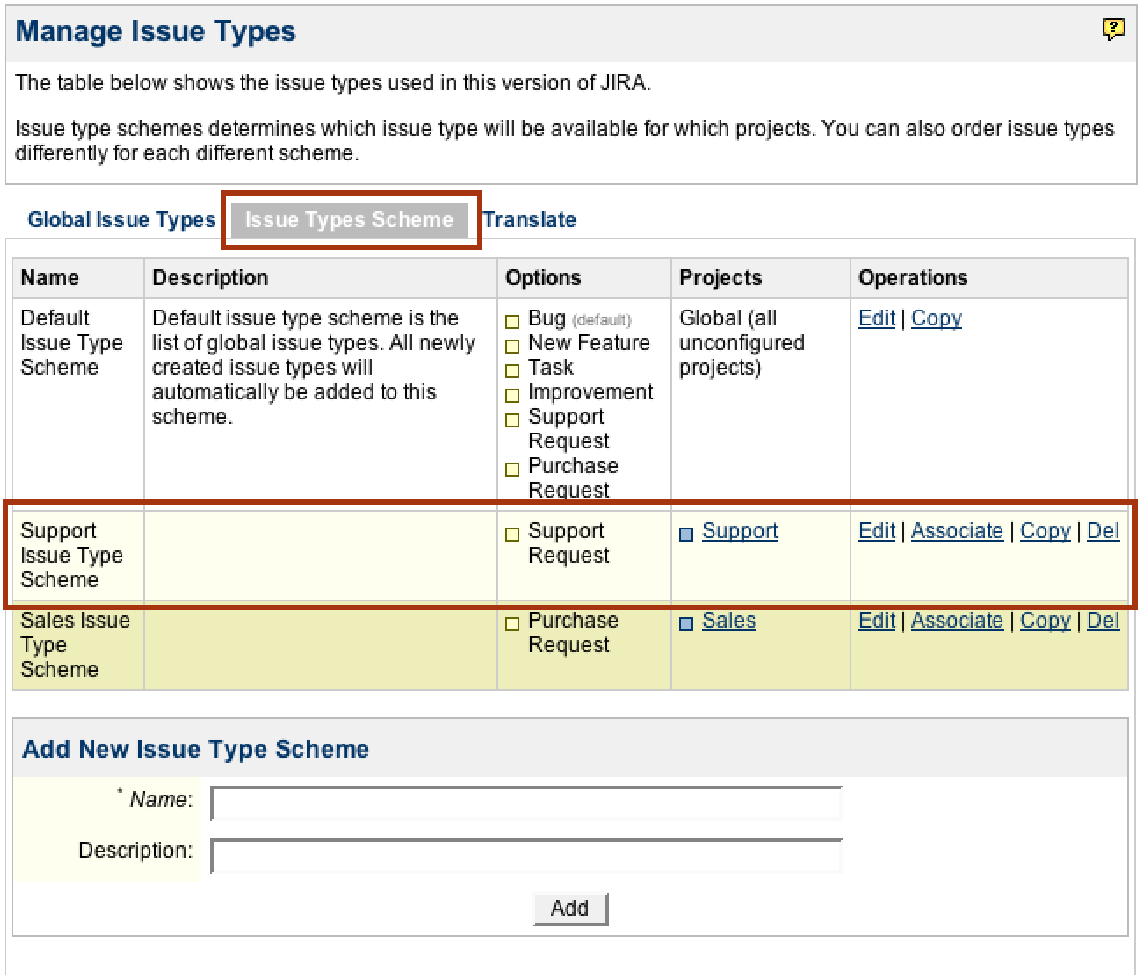
This release includes over 50 new features and improvements - see the full list of features & improvements online

Issue Types Per Project

The **most highly requested** feature in JIRA - with over **200** votes - you can now configure **Issue Types Per Project**. Issue types can be defined for a specific project - adding contextual relevance to issue type selection when creating/editing/moving an issue.

This feature provides the ability to better define the context of a project with only relevant issue types available - resulting in a more intuitive user interface, and enables greater control over the users' issue selection process.

For example, the **Sales** project may require a **Purchase Request** issue type, while this issue type would not apply to the context of the **Support** project. Further, the issue type **Support Request** is relevant within the **Support** project but would not apply to the context of the **Sales** project.



Renderers

This release also introduces **Renderers** within JIRA text-based fields such as description and comments - allowing a greater range of expression within these fields.

This release ships with two renderers, the default text renderer, which preserves the functionality available in previous JIRA releases, and the Atlassian wiki renderer, which brings the power of the Confluence wiki engine to JIRA. In the Enterprise edition of JIRA, renderers can be configured on a per field, per project/issue type level, allowing a flexible combination of text and wiki markup. In the Standard and Professional editions renderers can be configured on a per field basis. Renderers are implemented as pure JIRA plugins, meaning that any renderer can be easily added to or removed from use within JIRA, including any custom renderers that may be developed.

Further details on the renderer functionality is available in the documentation:

http://www.atlassian.com/software/jira/docs/v3.4/renderers_overview.html

Description

Header 1

Header 4

```
public String exampleCode(String test)
{
    return "this is an example";
}
```

inline attachments 

green blue red

TST-31

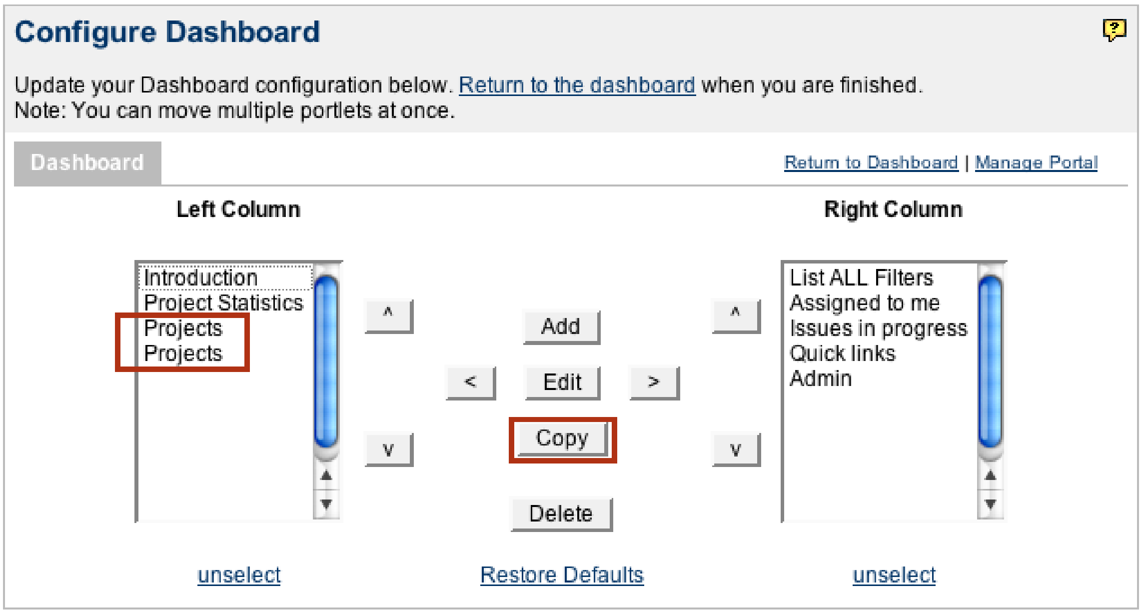
link to google

1. item 1
2. item 2

Day	Working Hours
Mon (Day 1)	8 - 5
Tue (Day 2)	8 - 5
Wed (Day 3)	8 - 5
Thu (Day 4)	8 - 5
Fri (Day 5)	8 - 5

Clone Portlets

Dashboard administration is simplified with the ability to clone a portlet.

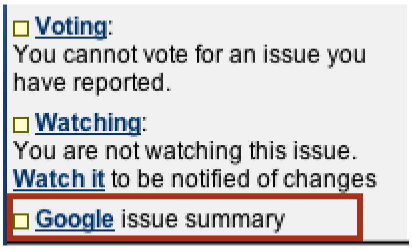


Issue Operation Plugin

This new system plugin allows new issue operations (links and HTML) to be added to the operations panel of the view issue screen. With a simple configuration process, it is possible to add quick access to commonly used links to every issue.

For example, the following operation will execute a **Google** search on the issue summary.

Information about how to create your own Issue Operations can be found in the docs online.

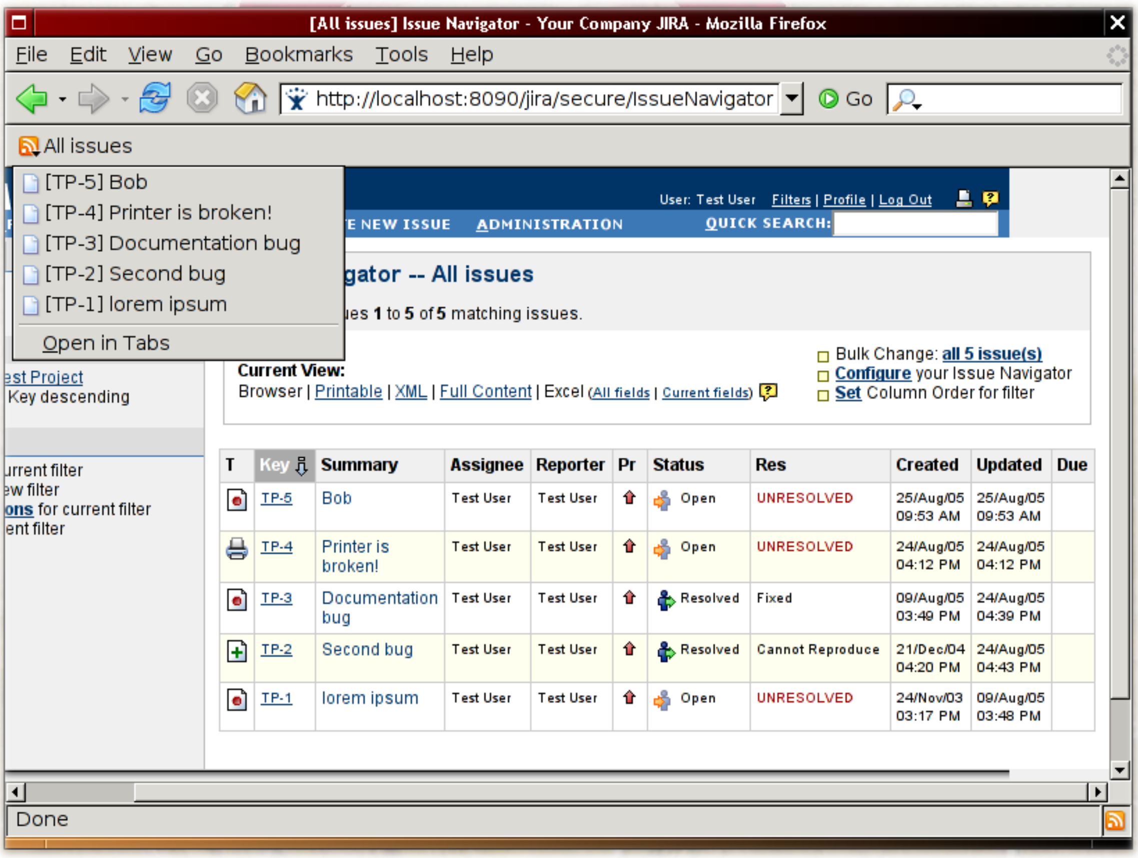


Improvements

RSS Support Improvements

JIRA has been improved to take advantage of browser support for RSS feeds. A result of any search can be accessed quickly and directly by adding 'live bookmarks'.

Basic authentication support for RSS feeds from JIRA has also been added in this release - allowing the option of avoiding the transmission of usernames and passwords across the wire in clear text format.



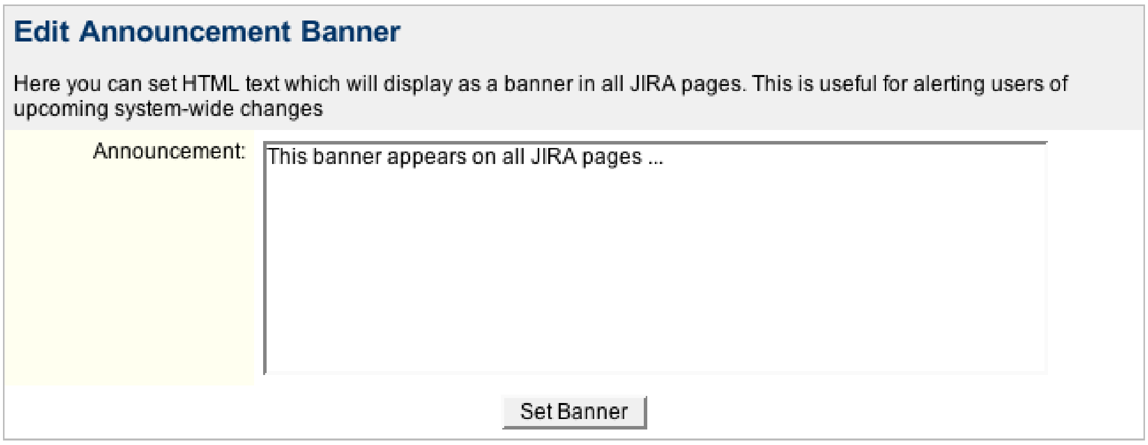
RPC Searching

The RPC searching functionality has been improved - results are returned quicker and more efficiently with fewer database calls.

Dynamic Announcement Banner

With thanks to Nick Minutello, the announcement banner can now be dynamically configured through the JIRA UI.

The announcement banner is displayed on all JIRA pages and is useful for alerting users to important information - for example, scheduled server maintenance, approaching project deadline, etc. This information can be updated immediately without having to restart JIRA.

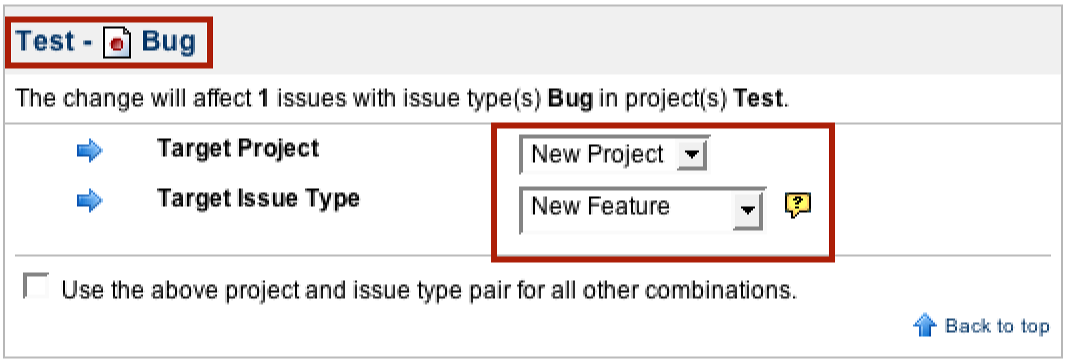


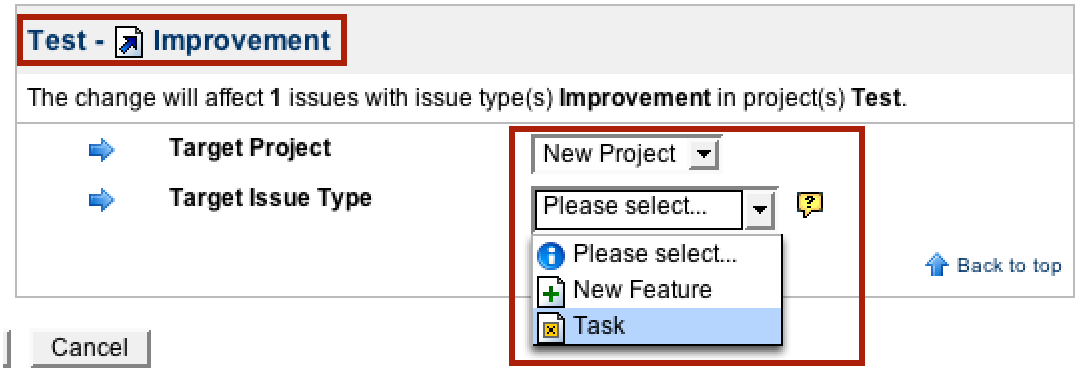
Internationalisation

With the introduction of the **Czech** language pack, JIRA is now available in **16** different languages. This release also includes an updated **Traditional Chinese** language pack. Once again, the Atlassian team would like to thank our users who have contributed to the translation process - this work is much appreciated.

Bulk Migration by Issue Type

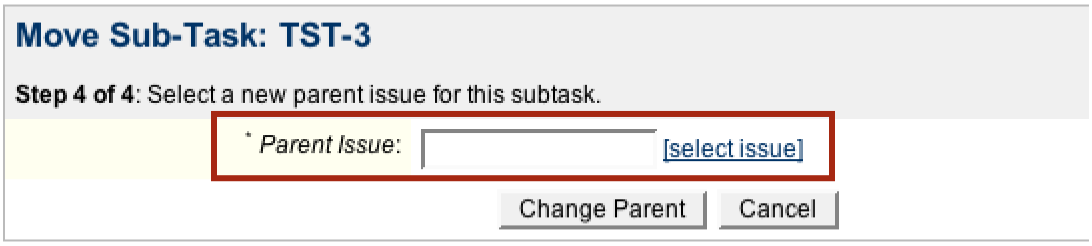
Previously, it was only possible to bulk migrate a collection of issues to a single project and issue type. Now, different issue types can be migrated to different projects and issue types - allowing you to specify exactly how each issue should be moved. With this fine-grained configuration capability, bulk migration operations are now easier and quicker.





Change Parent of Sub-Task

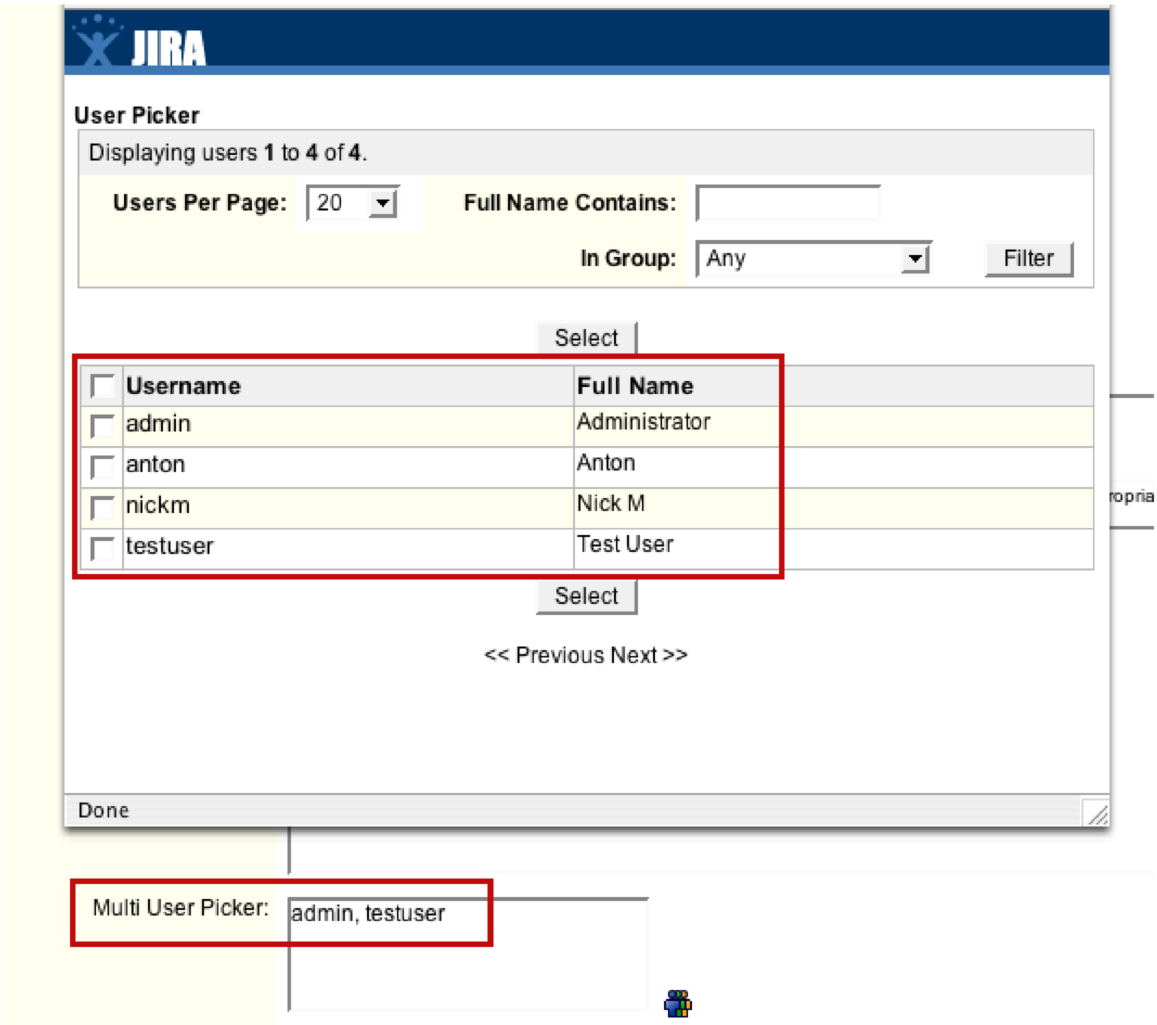
The parent issue of a sub-task can now be changed - allowing a sub-task to be 'moved' from one parent issue to another.



Multi-user Custom Field

It is now possible to select multiple users through the multi-user custom field.

This improvement has also been extended to the configuration of security level, permission and notification schemes. This means that by selecting users for the Multi-user field it is possible to control who will have access to the an issue and who will be notified when the issue is updated. Please note that using Multi-user custom field for permissions and security levels is only supported by the Enterprise Edition.



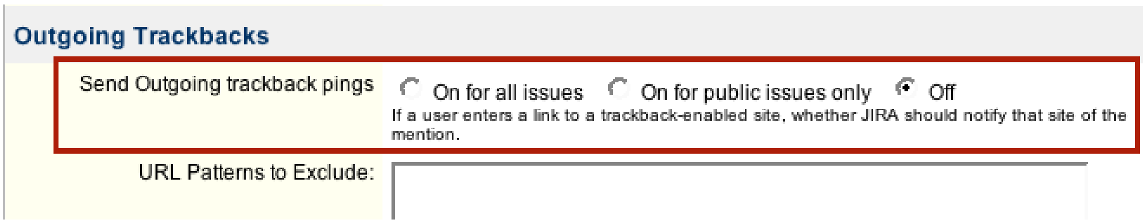
Trackback Configuration

Trackback configuration has been extended with three possible modes for **Outgoing Trackbacks**:

- **Off for All Issues**
- **On for Public Issues Only**
- **On for All Issues**

By using the **On for Public Issues Only** setting, trackbacks from issues protected by a security or permission scheme (i.e. issues not visible by non-logged in users) will not be sent - the external sites referenced in these secure issues will not be notified of the referral.

The operation of **Incoming Trackbacks** has also been modified such that 'secure' issues can receive trackback notifications. The issues will remain secure based on their security settings, but users who have access to the issues will be able to see the trackback references that issues have received.



Notable Features & Improvements

Some other notable improvements included in this release:

- New Jelly tag allowing a field (including custom field) to be placed onto a Screen
- Bugzilla importer preserves inter-issue dependencies
- Bugzilla importer converts Bugzilla text links to JIRA links
- Search user custom fields using group membership

Bug Fixes

This release includes over 70 bug fixes - the full list of bug fixes online

Notes

Javascript Caching

In some instances, the browser may read from a cached version of the Javascript files used throughout JIRA. This will result in certain elements appearing incorrectly - e.g. the issue type selection list may appear with repeated icons. This problem can be corrected by forcing a reload on the page in question - i.e. pressing 'CTRL-R' or 'F5'.

JIRA 3.4.1 Release Notes

JIRA 3.4.1 is released today in Standard, Professional and Enterprise editions. This point release fixes JIRA 3.4's incompatibility with MySQL and MS SQL Server and includes bug fixes and improvements which appear below.

If upgrading from JIRA 3.3.3 or 3.4 please read through JIRA 3.4 and 3.4.1 Upgrade Guide. If upgrading from an earlier version of JIRA please read through all the Upgrade Guides for all versions that you are skipping during the upgrade.

JIRA 3.4.1 bug fixes and improvements.

jiraissues: The URL parameter is required.

JIRA 3.4 and 3.4.1 Upgrade Guide

JIRA 3.4 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.4 from JIRA 3.3.3. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.

> Two major new features of JIRA 3.4, wiki renderer previews, and issue types per project require that javascript be enabled to make use of their full functionality. You will still be able to use all the core features of JIRA with javascript disabled.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

1. Please do **not** copy `jira-application.properties` file from your old JIRA installation. Edit the file that is shipped with JIRA 3.4 and make needed changes. New properties have been added to this file so if you simply copy the old file across the following error would occur JRA-8645.
2. If you have written any CustomFieldType or CustomFieldSearcher plugins please refer to Upgrading Custom Field Types in JIRA 3.4
3. The default user preferences are now configured in the jira-application.properties file and are configurable through the admin section of JIRA. Any properties in the old file preferences-default.xml will no longer effect JIRA configuration.
4. Please note that to configure issue types per project you must have JavaScript turned on in your web browser.
5. If you are using MySQL please do not use Connector/J 3.1.11 JDBC Driver as it has the following bug. Connector/J 3.1.10 and earlier work fine.

JIRA 3.4.1 Upgrade Guide

This section contains specific information you need to know when upgrading to JIRA 3.4.1 from JIRA 3.4. If upgrading from JIRA 3.3.3 please read the previous section as well. If upgrading from an older version than JIRA 3.3.3, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

1. Please do **not** copy `jira-application.properties` file from your old JIRA installation. Edit the file that is shipped with JIRA 3.4 and make needed changes. New properties have been added to this file so if you simply copy the old file across the following error would occur JRA-8645.
2. If you have written a CustomFieldType that implements the `com.atlassian.jira.issue.customfields.CustomFieldType` interface directly rather than extending one of the Abstract classes that ship with JIRA please read Upgrading Custom Field Types in JIRA 3.4.1.
3. If you have written an Custom Field Searcher please have a look at Upgrading Custom Field Types in JIRA 3.4.1.
4. JIRA 3.4 and 3.4.1 do not generate an Issue Assigned event. The Issue Updated event is generated instead. In previous versions of JIRA the Issue Assigned event was generated when issues are assigned using the "Assign" operation on the View Issue page. This means that even when the "Assign" operation is used JIRA will send notifications to parties listed under the Issue Updated event. The patch to correct this behaviour is available at JRA-8533.

Upgrading Custom Field Types in JIRA 3.4

Unknown macro: {version-warn}

JIRA 3.4 and higher

Changes to the custom field types code

For JIRA 3.4, there has been further upgrades to the custom fields code. If you have written your own Custom Field Types of Custom Field

Searchers, you'll want to read this document. We recommend that you ensure that your custom field types compile against the latest 3.4 build and verify this under a testing environment before putting it into production.

You can download the latest JIRA Development Kit from its confluence space.

CustomFieldType Interface changes CustomFieldConfig and CustomFieldConfigItemType changed to FieldConfig and FieldConfigItemType

Note that the references to `CustomFieldConfig` and `CustomFieldConfigItemType` has become `FieldConfig` and `FieldConfigItemType` respectively. This change is to bring CustomFields and SystemFields closer so that, in the future, fields can be configured in uniform way.

```
com.atlassian.jira.issue.customfields.config.CustomFieldConfig;
com.atlassian.jira.issue.customfields.config.CustomFieldConfigItemType;
```

has become

```
com.atlassian.jira.issue.fields.config.FieldConfig;
com.atlassian.jira.issue.fields.config.FieldConfigItemType;
```

A straight replacement should do the trick.

isRenderable()

With the addition of renderers in JIRA 3.4 there has been a minor addition to the CustomFieldType interface. There is a now a method of the signature:

```
public boolean isRenderable();
```

There is a default implementation of this method in the AbstractCustomFieldType class that returns false. If you are extending any of the existing base classes, AbstractCustomFieldType, TextCFType, SelectCFType, then there are no changes needed to upgrade your CustomField Types.

If you are implementing the CustomFieldType interface then you will need to implement the isRenderable method in your class. To retain the functionallity that you always had the method should return false. With the introduction of renderable fields in JIRA 3.4 if you return true in the isRenderable method then you will be able to assign the custom field a renderer. This only really makes sense for text fields where you can use the power of the wiki syntax.

getChangelogString()

To better support logging of change history from custom fields there is now a method of the signature:

```
public String getChangelogString(CustomField field, Object value);
```

This method allows a custom field type to provide a string that can give a custom fields value meaning. The two examples that ship with JIRA are the ProjectPicker and VersionPicker custom fields. Both of these fields store the database id of the value (e.g. My Project is id 10000, so it stores 10000). The ProjectCFType object will return the value 'My Project' from this new method so that we can register in the change item bean that the string is 'My Project' and that the value is '10000'. The AbstractCustomFieldType object returns null for this method by default. If you are extending any of the existing base classes, AbstractCustomFieldType, TextCFType, SelectCFType, then there are no changes needed to upgrade your CustomField Types.

Upgrading Custom Field Types in JIRA 3.4.1

Upgrading Custom Field Types in JIRA 3.4.1 valuesEquals method addition

If you have implemented a CustomFieldType by directly implementing the `com.atlassian.jira.issue.customfields.CustomFieldType` interface instead of extending one of the Abstract classes that ship with JIRA, you will need to add the following method to your implementation:

```
/**
 * Used to compare old field value to the new field value when the issue is being updated
 * and work out whether a change item should be generated.
 * @param v1 current value
 * @param v2 new value
 * @return true if the change item should be generated, false otherwise
 */
boolean valuesEqual(Object v1, Object v2);
```

This means that you will need to implement this method and recompile your class before deploying it into JIRA 3.4.1.

The method has been introduced to resolve bug JRA-8480 and allows the CustomFieldType to have control over change items that JIRA generates when an issue is updated.

The `com.atlassian.jira.issue.customfields.impl.AbstractCustomFieldType` implements the method as follows:

```
if (v1 == v2)
{
    return true;
}

if (v1 == null || v2 == null)
{
    return false;
}

return v1.equals(v2);
```

which is compatible with the behaviour of previous JIRA releases. Therefore if your CustomFieldType extends AbstractCustomFieldType, or any of its subclasses, you do not need to add this method, unless you would like to take advantage of it.

CustomFieldSearchers - AbstractCustomFieldSearcher constructor change

If you have implemented any CustomFieldSearchers that extend the com.atlassian.jira.issue.customfields.searchers.AbstractCustomFieldSearcher class then you will have to modify your CustomFieldSearcher. The constructor of the AbstractCustomFieldSearcher class has changed from being a no-arg constructor to taking an instance of com.atlassian.jira.web.bean.FieldVisibilityBean. You must pass the FieldVisibilityBean to the super classes constructor. You will need to include code that will look something like this:

```
public MultiProjectSearcher(FieldVisibilityBean fieldVisibilityBean)
{
   super(fieldVisibilityBean);
}
```

JIRA 3.4.3 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.4.3 Release Notes

In the tradition of worthwhile updates, JIRA 3.4.3 is released today in Standard, Professional and Enterprise editions. This point release includes over 40 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version than JIRA 3.4.2 please read through the Upgrade Guides for all versions that your are skipping during the upgrade. If upgrading from JIRA 3.4.2 please read the 3.4.3 Upgrade Guide before continuing.

JIRA 3.4.3 includes over 40 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.4.3 Upgrade Guide

JIRA 3.4.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.4.3 from JIRA 3.4.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.4.2 to JIRA 3.4.3.

JIRA 3.4.2 Release Notes

JIRA 3.4.2 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

In the tradition of worthwhile updates, JIRA 3.4.2 is released today in Standard, Professional and Enterprise editions. This point release includes over 35 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version than JIRA 3.4.1 please read through the Upgrade Guides for all versions that your are skipping during the upgrade. If upgrading from JIRA 3.4.1 please read the 3.4.2 Upgrade Guide before continuing.

JIRA 3.4.2 includes over 35 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.4.2 Upgrade Guide

JIRA 3.4.2 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.4.2 from JIRA 3.4.1. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.4.1 to JIRA 3.4.2.

JIRA 3.4.1 Release Notes

JIRA 3.4.1 Release Notes

JIRA 3.4.1 is released today in Standard, Professional and Enterprise editions. This point release fixes JIRA 3.4's incompatibility with MySQL and MS SQL Server and includes bug fixes and improvements which appear below.

If upgrading from JIRA 3.3.3 or 3.4 please read through JIRA 3.4 and 3.4.1 Upgrade Guide. If upgrading from an earlier version of JIRA please read through all the Upgrade Guides for all versions that you are skipping during the upgrade.

JIRA 3.4.1 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.
jiraissues: The URL parameter is required.

JIRA 3.3 Release Notes

JIRA 3.3 Release Notes

Atlassian Software Systems is proud to announce the latest release of *the* issue tracking and project management application - **JIRA 3.3** - download it here. Only 10 weeks since the last release, **JIRA 3.3** includes some of the most requested features along with a host of bug fixes and improvements.

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Upgrade Information
In order to complete a successful upgrade, please refer to the following guides:

- JIRA 3.2 Upgrade Guide
- JIRA 3.3 Upgrade Guide

It is necessary to follow both guides if upgrading from a **pre 3.2.x** version. It is only necessary to follow the JIRA 3.3 Upgrade Guide when upgrading from a **3.2.x** version.

Features and Improvements:

- Multiple Project Filters
- Bulk Move
- User Custom Field Notification Target
- Extended Search Capabilities
- SOAP Enhancements
- Performance Improvements
- New Translations

Contents

1. New Features
2. Improvements
3. Bug Fixes

New Features

This release of JIRA includes some of the most requested features as logged at http://jira.atlassian.com - the full list can be viewed at JIRA

3.3 New Features & Improvements.

Multiple Project Filters

The Issue Navigator has been completely overhauled to pave the way for future extended search functionality and enhancements. Addressing one of the most popular feature requests (with over 50 votes), this release includes the ability to execute a **search across multiple projects**.

This feature increases the searching capabilities available to the user with the ability to aggregate a collection of issues from across multiple projects. Users can now design a search query that directly addresses their requirements for searching throughout JIRA.

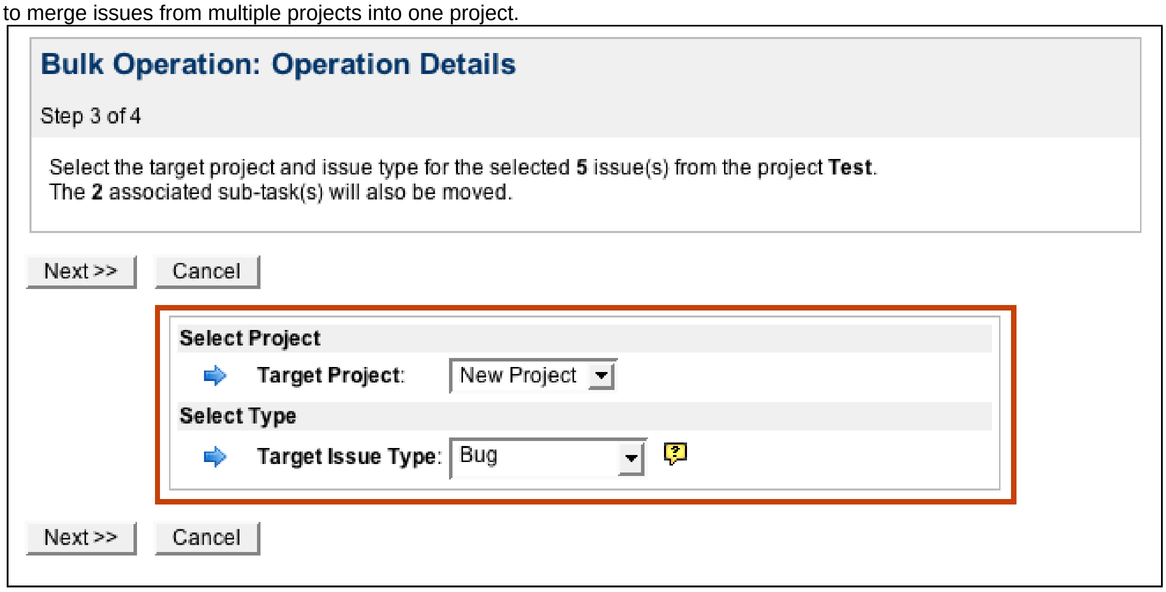
The applications of this improved search capability are countless ... for example:

- Retrieve all issues opened in the last week from selected projects - add these results to an RSS feed or view them on the JIRA dashboard
- Add a statistics portlet to the JIRA dashboard with results from a multi-project filter
- Subscribe to a multi-project filter containing issues assigned to your team members - with issues retrieved only from the projects you manage!multiplesearch.png|align=center,border=1!

Bulk Move

Extending the range of bulk operations available in JIRA, it is now possible to move multiple issues at once.

The Bulk Move operation allows a collection of issues (from multiple projects and consisting of multiple issue types) to be moved to another project and/or issue type. The ability to update multiple issues in this manner gives the user even more power - for instance, it is now possible to merge issues from multiple projects into one project.



User Custom Field as Notification Target

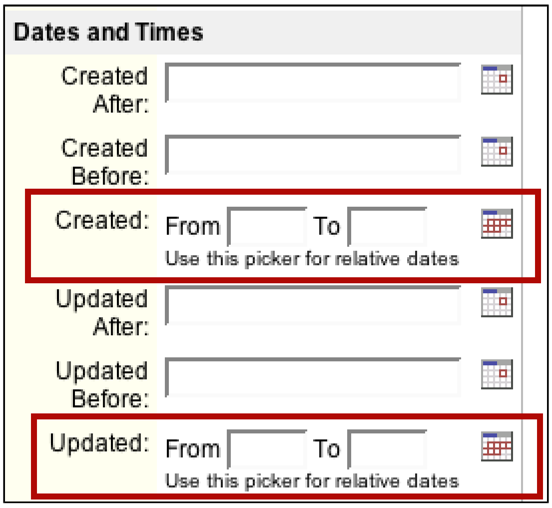
It is now possible to specify an additional notification target by selecting a user in a '**CC**' custom field. This provides the issue creator/editor the ability to add another user to the notification recipient list for a specific issue. Many thanks to Chris Wood at MetOcean Engineers for his work on this feature!

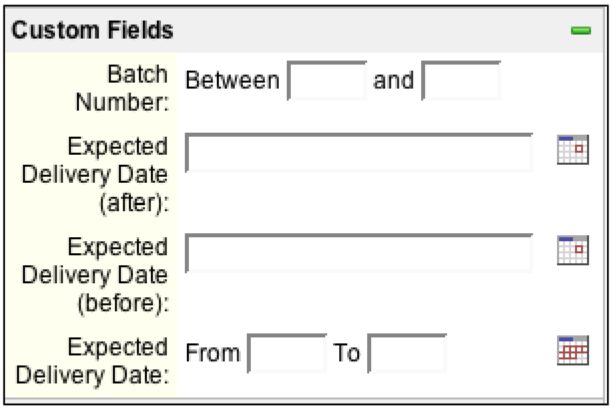
Improvements

This release of JIRA includes some significant improvements in available functionality and overall system performance.

Extended Search Capabilities

More precise search filters can be created by specifying a date range in relation to the system fields '**Created**' and '**Updated**' and the custom field '**Date Time**'. A number range can also be specified for the '**Number**' custom field. The ability to specify a range in this manner provides the user with a very fine-grained filter over a specific set of issues.





SOAP Enhancements

JIRA's SOAP capabilities are growing more complete with each release. For JIRA 3.3, you can now progress an issue through a workflow remotely; find out what actions are available for an issue, update the fields and progress through the workflow. It's now easier than ever to seamlessly integrate JIRA with external tools.

Extended XML-RPC Functionality

Bringing the XML-RPC functionality inline with the current SOAP plugin, it is now possible to update an issue & run a search request.

Performance Improvements

Continually striving to advance system efficiency, this release includes a number of notable performance improvements:

- **Issue Navigator** performance has been improved with fewer database access calls - displaying filter results quicker
- **Workflow Activation** is now less memory intensive - the operation completes without pulling all issues into memory to make the new workflow association
- **Version Management** operations have been streamlined to complete quicker
- The **Link Issue** pop-up displays quicker
- The **Permission Schemes** and **Notification Schemes** management pages have been refined to return scheme information quicker
- **Date Range** searches are executed more efficiently

New Translations

Along with updates to the **Traditional Chinese** and **German** translations, JIRA is now available to use in **Italian** and **Slovakian**. Once again, we would like to thank all those who have contributed to the translation process - JIRA is now available in **14** different languages.

JIRA Standalone

JIRA Standalone now ships with Tomcat 5.5 - allowing users to use JIRA out of the box with the latest version of the popular application server.

> **Previous Standalone Installations**
> Due to incompatibilities in the format of the **server.xml** file between versions of Tomcat - please **do not copy** the **server.xml** file from previous standalone installations to the new standalone installation.

Bug Fixes

This release includes over 90 bug fixes - the best way to see them is them is to ask JIRA - Issues Resolved for JIRA 3.3.

JIRA 3.3 Upgrade Guide

JIRA 3.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.3 from JIRA 3.2.x. If upgrading from an older version of JIRA, please go to the complete list of Upgrade Guides, and read the notes for each version you are skipping during the upgrade.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Known incompatibilities

3.3.x is not a good release for IBM shops:

1. JIRA 3.3.x may not work on **Websphere 5.0.x and 5.1.x** due to JRA-7699
2. When using DB2, JIRA may hang when deleting projects or performing workflow operations. See the full problem description (and possible workaround) in the documentation

Websphere or DB2 users, please stick with 3.2.x or move on to 3.4.x or higher, where these problems have been resolved.

Notes on upgrading

1. Due to web browser caches, changes to JIRA's Issue Navigator might appear corrupted or unstyled. Please refresh your browser's cache (press *Shift+Reload* on the Find Issue's page) for the changes to appear correctly.
2. JIRA's **issue cache** size will be automatically set to 0 during the upgrade, as it is no longer needed due to performance improvements in JIRA (JRA-7166)
3. If you have written any CustomFieldType or CustomFieldSearcher plugins please refer to this document
4. Users with **outgoing** trackback pings enabled (not the default) may wish to disable this until JRA-7589 is fixed, to avoid the risk of the mail queue hanging.
5. If you have bookmarks or deal with hard coded links to the issue navigator, you should read about the changed issue navigator parameters
6. If you are **using JIRA Standalone**, please do *not* simply copy your old `conf/server.xml` file to the new installation of JIRA. Please read this document.
7. If upgrading JIRA in an external Tomcat installation, be sure to delete the `work/` temporary directory before restarting JIRA, to clear cached JSPs from the old JIRA.

Parameter changes in Issue Navigator

We've made significant backend changes to the issue navigator in 3.3. This resulted in some parameters being changed and are deprecated.

What does this affect?

This affects only direct links to the issue navigator that's been saved outside JIRA. e.g. a bookmark to an RSS feed, a Confluence page with the search parameters hard coded. This will not affect saved filters in JIRA, or portlets shipped with JIRA.

What has changed?

For 3.3 parameters that have changed are:

1. resolutionIds -> resolution
2. priorityIds -> priority
3. statusIds -> status
4. createBefore -> create:before
5. createAfter -> create:after
6. createPrevious -> create:previous
7. updateBefore -> update:before
8. updateAfter -> update:after
9. updatePrevious -> update:previous
10. duedateBefore -> duedate:before
11. duedateAfter -> duedate:after
12. duedatePrevious -> duedate:previous
13. duedateNext -> duedate:next

Also the values for the createNext and updateNext parameters has been modified.

What this means for me? What do I need to do?

We've put in place mechanisms that makes the issue navigator backwards compatible, so you won't actually notice any difference using links with deprecated parameters. However, it's **strongly recommended** that you re-bookmark any affected links to JIRA. We can't guarantee that this will be in place forever and it's better if you update it as a soon as possible.

For system administrators, all searches using the deprecated parameters will be logged to the server with the client's URL and IP address. You should try to chase up the user so that there's no major problems down the track.

If you find these warnings impossibly annoying, you can update your `log4j.properties` to disable them by adding the line below to your log4j.properties. However, we **strongly discourage** you from doing this. The warnings are there so that they can be identified and stop any problems further down the track.

```
log4j.category.com.atlassian.jira.util.retro = ERROR, console
```

Upgrading custom CustomFieldTypes in JIRA 3.3

Applies to JIRA 3.3 and higher

Changes to the custom field types code

For JIRA 3.3, there has been further upgrades to the custom fields code. If you have written your own Custom Field Types of Custom Field Searchers, you'll want to read this document. We recommend that you ensure that your custom field types compile against the latest 3.3 build and verify this under a testing environment before putting it into production.

You can download the latest JIRA Development Kit from its confluence space.

CustomFieldType Interface changes

We removed all references to GenericValue objects in the CustomFieldType and replaced it with Issue. The issue object provides powerful accessors to the issue's parameters such as affects versions and components. If you still need the old GenericValue object, you can call `getGenericValue` on the issue object.

We've also added a new method to the interface.

```
/**
     * Returns a list of indexers that will be used for the field. This will over-ride the
anonymous searcher specified
     * by {@link AbstractCustomFieldSearcher#getRelatedIndexers()} and {@link
AbstractCustomFieldSearcher#index(Document,
     * CustomField, Object)}
     *
     * @return List of instantiated and initialised {@link FieldIndexer} objects. Null if no
related indexers.
     */
    List getRelatedIndexers(CustomField customField);
```

Through this method you can over-ride how this custom field will get indexed.

CustomFieldSearcher Interface over-haul

The CustomFieldSearcher interface now extends the new IssueSearcher interface. This allows you to write more flexible searchers as well as easily extend and reuse code from the default system searchers.

If you haven't developed your own custom searchers, then there's nothing you need to do. If you do have custom searchers but they extend AbstractCustomFieldSearcher then you shouldn't have to make any changes to the Java code as we have tried to keep this class backwards compatible. However, you should still recompile to make sure.

You will need to update all velocity pages used by the searcher. For the edit pages you'll need to use the new header (rather than the controlHeaders)

```
#searcherEditHeader ($customField.id $customField.name)

...

#searcherEditFooter ($customField.id $customField.description)
```

and for the view templates:

```
#searcherHeader ($customField)

...

#searcherFooter ($customField)
```

This change is in order to give the search templates greater flexibility (i.e. allow different rendering behaviour of the searcher from the standard edit screens.

Upgrading to JIRA 3.3 Standalone

Upgrading to JIRA 3.3 Standalone

JIRA Standalone now ships with Tomcat 5.5 - allowing users to use JIRA out of the box with the latest version of the popular application server.

Previous version of JIRA shipped with an older version of Tomcat, for example, JIRA 3.2.x shipped with Tomcat 4.1.29. The configuration files for Tomcat 5.5 are **not compatible** with files from older Tomcat releases.

This means that you cannot simply copy the `conf/server.xml` from your old JIRA Standalone installation. You will need to use the `conf/server.xml` shipped with JIRA 3.3 Standalone as a starting point, and then customise it for your database as described in our documentation.

JIRA 3.3.3 Release Notes

JIRA 3.3.3 Release Notes

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

In the tradition of worthwhile updates, JIRA 3.3.3 is released today in Standard, Professional and Enterprise editions. This point release includes over 70 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version than JIRA 3.3.2 please read through the Upgrade Guides for all versions that your are skipping during the upgrade. If upgrading from JIRA 3.3.2 please read the 3.3.3 Upgrade Guide before continuing.

JIRA 3.3.3 includes over 70 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.3.3 Upgrade Guide

JIRA 3.3.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.3.3 from JIRA 3.3.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

1. the release notes templates, releasenotes-html.vm and releasenotes-text.vm are no longer provided with an Issue GenericValue, they are now provided an Issue object. If you have customized these templates you will need to modify your velocity syntax to access the Object methods instead of accessing the values via
   the GenericValue.

JIRA 3.3.2 Release Notes

JIRA 3.3.2 Release Notes

In the tradition of worthwhile updates, JIRA 3.3.2 is released today in Standard, Professional and Enterprise editions. This point release includes over 40 bug fixes and improvements. It can be downloaded here.

If upgrading from an earlier version than JIRA 3.3.1 please read through the Upgrade Guides for all versions that your are skipping during the upgrade. If upgrading from JIRA 3.3.1 there is no specific Upgrade Guide for JIRA 3.3.2.

JIRA 3.3.2 includes over 40 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.3.1 Release Notes

JIRA 3.3.1 Release Notes

In the tradition of worthwhile updates, JIRA 3.3.1 is released today in Standard, Professional and Enterprise editions. This point release includes over 30 bug fixes and improvements. It can be downloaded here. See the JIRA 3.3 Upgrade Guide and JIRA 3.3.1 Upgrade Guide before upgrading.

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

JIRA 3.3.1 includes over 30 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.3.1 Upgrade Guide

JIRA 3.3.1 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.3.1 from JIRA 3.3.

> If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below:

1. If you have implemented a cutom Issue Tab Panel plugin you need to be aware of this API change.

> If you are upgrading to JIRA 3.3.1 from a previous version, due to web browser caches, changes to JIRA's Issue Navigator might appear corrupted or unstyled. Please refresh your browser's cache (press Shift+Reload on the Find Issue's page) for the changes to appear correctly.

JIRA 3.3.1 Issue Tab Panel extension

Unknown macro: {version-warn}

JIRA 3.3.1

JIRA 3.3.1 Issue Tab Panel extension

> You only need to worry about this page if you have a implemented a custom Issue Tab Panel JIRA plugin

Before JIRA 3.3.1 every `IssueAction` object that a `IssueTabPanel` returned would appear on the "All" tab on the View Issue page. Therefore an Issue Tab Panel could not return an IssueAction with a simple informational message, without poluting the "All" tab with this message. (This caused the JRA-7822 bug).

In JIRA 3.3.1 the `isDisplayActionAllTab()` method was added to the `com.atlassian.jira.issue.action.IssueAction` interface. This method should return "true" if the `IssueAction` should appear on the "All" tab, and "false" otherwise.

Therefore, if you have implemented this interface directly in your plugin, you will need to implement this method and recompile your plugin before deploying it into JIRA 3.3.1. If you have extended a JIRA class instead, e.g. `com.atlassian.jira.issue.action.AbstractIssueAction` or `com.atlassian.jira.issue.action.AbstractGVIssueAction` you do not need to recompile your plugin.

JIRA 3.2 Release Notes

JIRA 3.2 Release Notes

Atlassian Software Systems is proud to announce the latest release of *the* issue tracking and project management application - **JIRA 3.2** (download). Following the tradition of frequent and worthwhile upgrades, **JIRA 3.2** once again raises the bar in the professional issue tracking arena with a host of new features, improvements and bug fixes. Included in this release:

- Customisable fields for transitions
- Tabbed field screens
- Contextual custom fields
- Extended Bulk Edit Capabilities
- Improved internationalisation
- Improved performance
- ...and much more!

JIRA just got a whole lot better!

Upgrading to JIRA 3.2?
Please refer to the following documentation regarding the upgrade process to JIRA 3.2 from previous versions - JIRA 3.2 Upgrade Guide

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Contents

1. New Features
2. Improvements
3. Bug Fixes

New Features

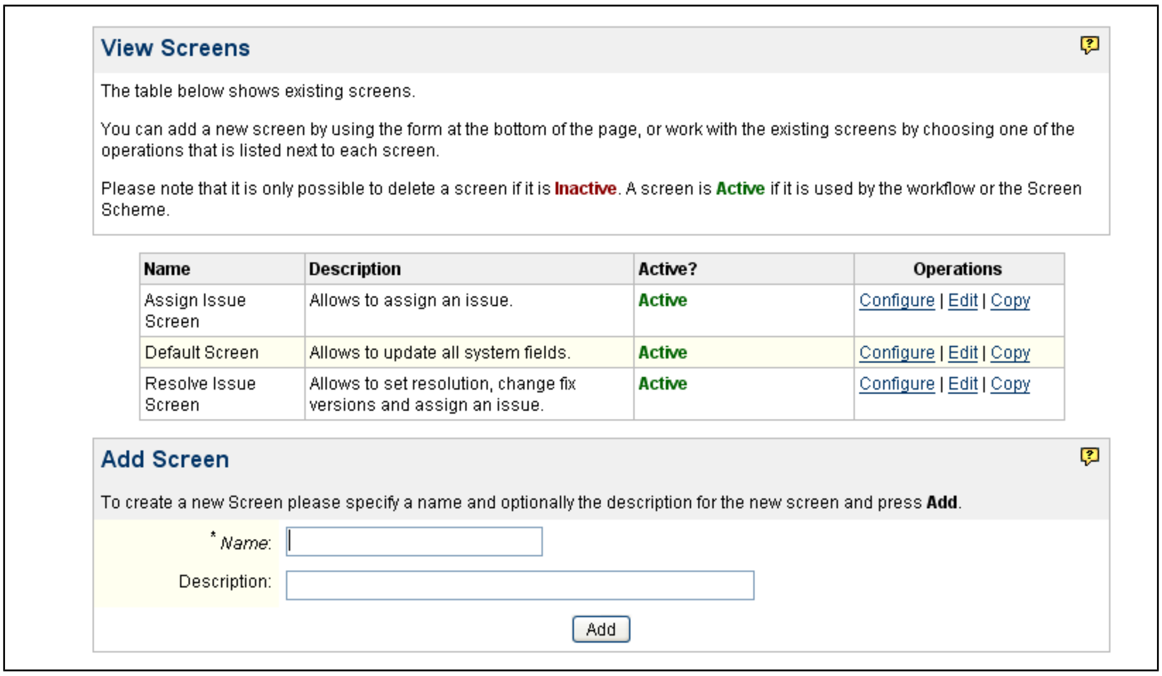
JIRA 3.2 Documentation
Further information on all these new features can be found in the JIRA 3.2 documentation. A full list of the new features and improvements in JIRA 3.2 can be found here.

Field Screens

JIRA 3.2 allows configuration of field position and visibility for each issue operation and in Professional and Enterprise editions for each workflow transition screen.

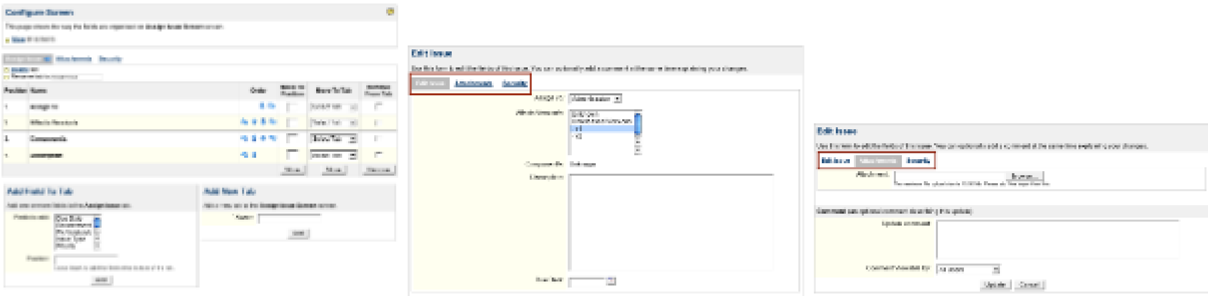
Each page on which you view and enter data for an issue is now a customisable "field screen". This provides for a flexible, more intuitive interface, with the ability to configure exactly which fields are presented for each operation. Each screen contains only those fields that directly relate to the operation being performed - while fields that do not relate to the operation can be hidden.

For example, it is possible to configure the *'Create Issue'* screen to display the *'Assignee'* field, while hiding this field in the *'Edit Issue'* screen. It is also possible to configure JIRA such that certain fields (including custom fields) appear only on specific workflow transitions: for example, if you have a *'QA Contact'* custom field, you can now configure JIRA to ensure that it is shown only on the *'Close Issue'* transition.



Field Screen Tabs

With JIRA Enterprise edition, you aren't even limited to a single field screen. Each page can have its fields divided amongst a group of tabs, creating a less cluttered environment as less used fields (e.g. attachments) can be placed in separate tabs.

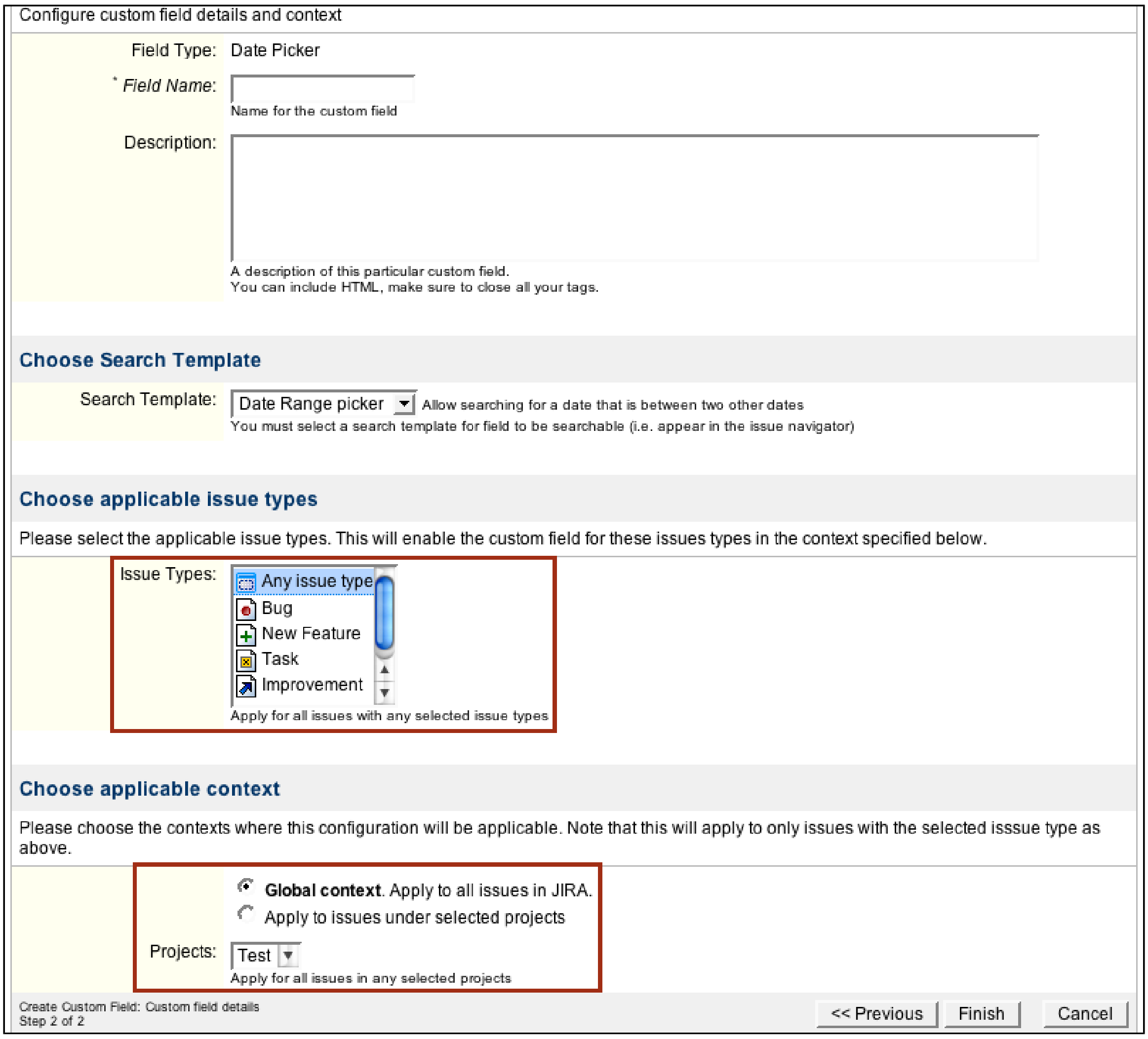


Contextual Custom Fields

Custom fields have been enhanced even further to allow greater flexibility and potential for customisation. Custom Fields are no longer limited to a single project or issue type, but can be shared between multiple issue types and multiple projects. Gone is the need to create the same custom field over and over again. Custom fields can be defined within a specified context or set of issue types, allowing them to be defined exactly where you need them.

Custom fields related to several projects and/or issue types can be configured to appear for those projects and/or issue types. For example, a custom field *'Customer ID'* could be associated with the *'Sales'* and *'Customer Info'* projects, while a custom field *'Operating System'* could be associated with the *'Bug'* and *'Improvement'* issue types in the *'Support'* project.

With configuration contexts, the same custom fields can still be configured differently for each project: for example having different default values.



Extended Bulk Edit

Further extending the bulk edit functionality, it is now possible to bulk edit more fields - a much requested feature. The list of fields that can be modified has been extended to include:

- Due Date
- Reporter
- Issue Security Level
- Issue Type

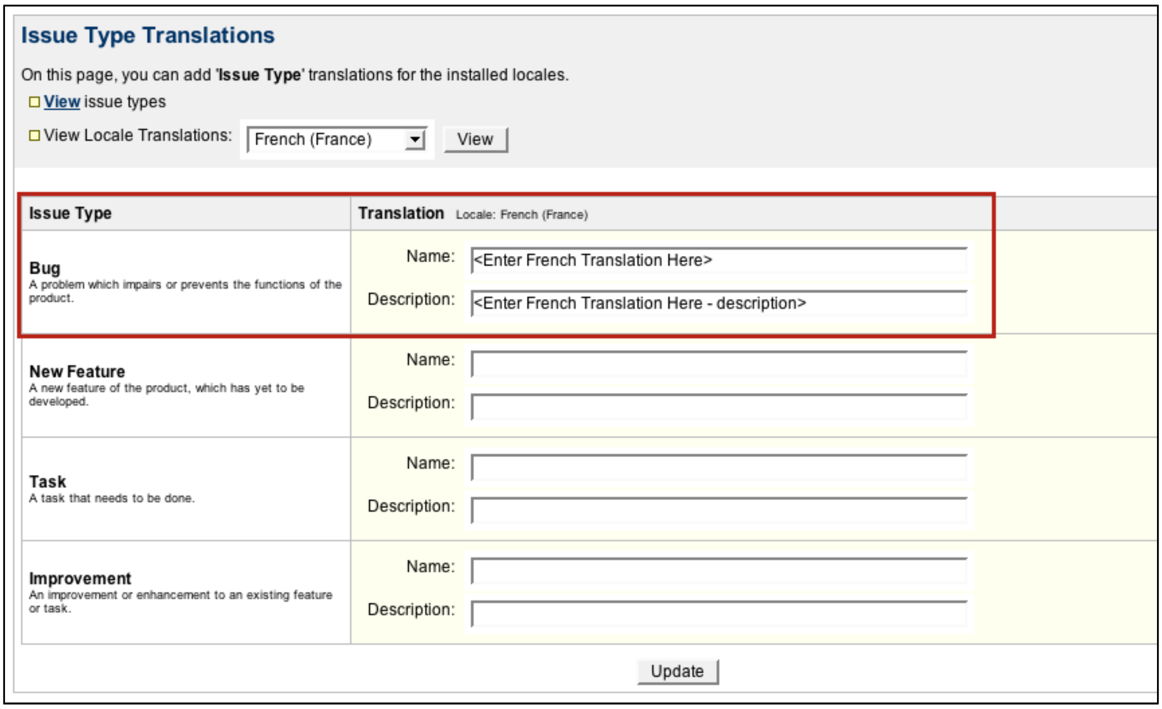
The bulk edit of assignee also works across multiple projects - allowing the selection of only valid assignees across all projects.

Internationalisation - *Viva la JIRA!*

Issue Constant Translations

Continuing our commitment to a fully internationalisable issue manager, JIRA 3.2 provides the ability to translate all issue settings - i.e. Priorities, Statuses, Issue Types and Resolutions. This allows for even more complete translations to present JIRA to each user in their own chosen language.

Hence, users who have selected the French locale will be presented with the French translations for the issue settings, while the Spanish users will be presented with the Spanish translations. The translations are presented throughout the JIRA interface - in issue creation/editing/viewing, reports, portlets, etc.



New Language Pack

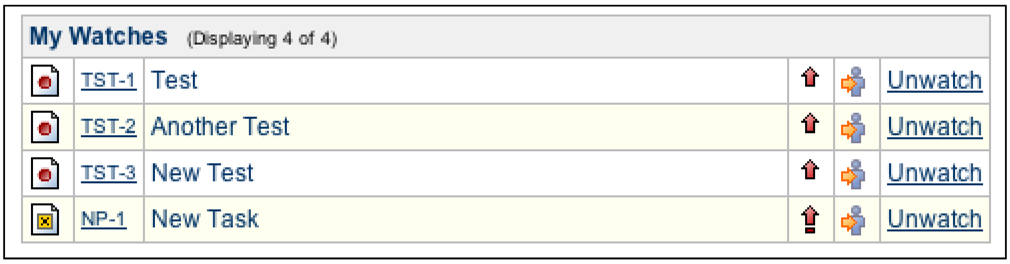
With the addition of Traditional Chinese, JIRA's user interface can be displayed in 12 languages.

Subversion - Multiple Repositories Support

The most popular JIRA Subversion plugin feature request has been addressed with support for multiple repositories now included in the latest plugin release. This allows users to map multiple JIRA projects to multiple Subversion repositories.

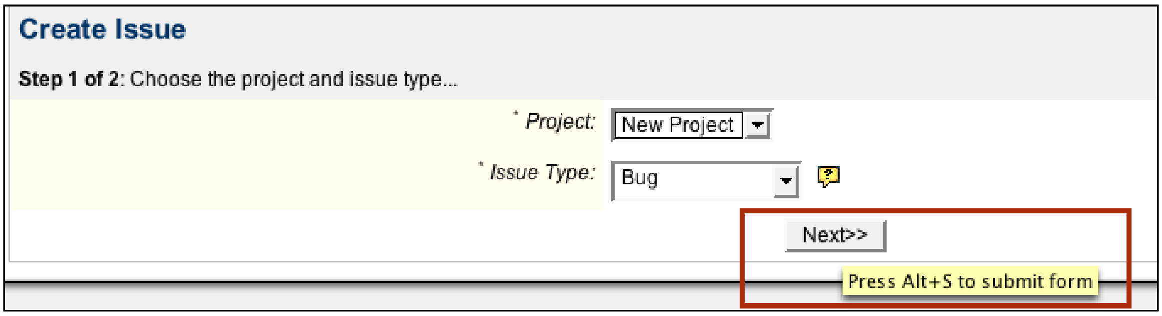
New Portlets

JIRA 3.2 introduces the **Voted Issues** and **Watched Issues** portlets - respectively showing the issues voted for and watched by the current user. These portlets can be added to the dashboard in the normal manner - providing quick access to the data you need.



Shortcuts

Navigating through JIRA is now quicker than ever with the addition of a number of shortcuts. Every form - from issue creation to editing a version - in JIRA can be submitted with the shortcut **ALT+S**. Form submission can be canceled using the shortcut **ALT+`** (ALT + backquote).



For more information on keyboard shortcuts please see our documentation.

Profile Email

In order to protect against spammers harvesting email addresses from JIRA, this release includes the functionality to hide the email addresses located on the user profile page. It is possible to configure the display of this information as follows:

- Show
- Hide
- Mask (e.g. *'user@example.com'* becomes *'user at example dot com'*)
- Show to logged in users only

Improvements

Performance - *JIRA goes to boot camp!*

One of the main goals of this release was to improve on overall performance of JIRA and there are major improvements in memory usage and speed. Utilising the Lucene search engine and some clever coding, some of the notable enhancements include:

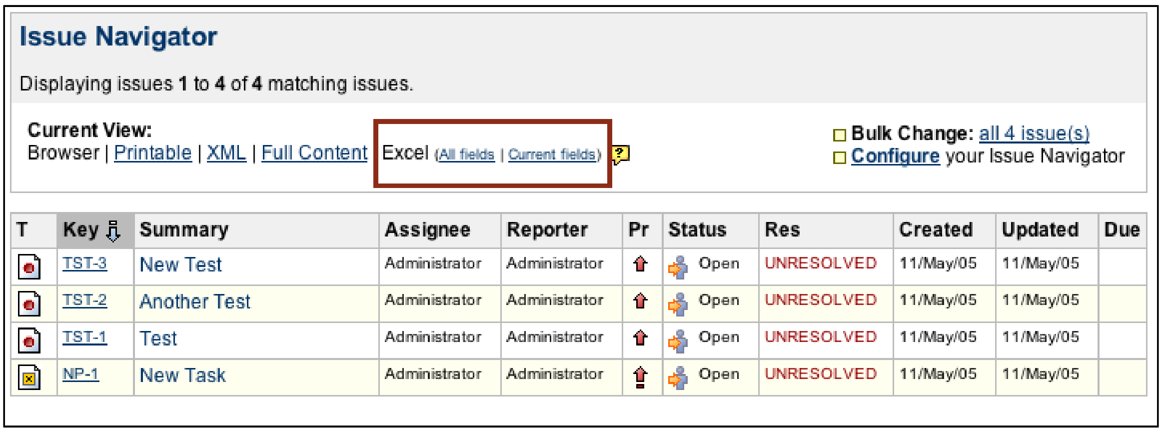
- Issue Navigator
  - **Much** quicker searching and Sorting (usually under 1s)
- Browse Project
  - Quicker **Project**, **Popular Issues** and **Open Issues** reports benefit with *up to **10x** improvement*
- Portlets
  - **Project** portlet is now ***2x** faster*
  - **Assigned to Me** portlet is *up to **10x** faster* and more efficient
- Importing and Indexing
  - Restoring JIRA backups or upgrading to a new version of JIRA is now ***2x** faster*.

Smart Query - *let JIRA find it for you!*

The 'Smart Query' functionality within JIRA has been further extended to provide easy access to commonly requested searches. For example, entering the query *'unresolved'* will direct the user to a list of unresolved issues. Further details on this feature can be found here.

EXCEL View

Many users requested that the EXCEL view display the same columns as displayed in the Issue Navigator view ... now it is possible to display *all* columns or just those visible in the the issue navigator.



Email Notification

Many users requested the ability to change the format of the ***From*** email address within JIRA notifications. The format is now fully configurable - with the ability to include or exclude the user name, email address and email hostname: for example, the format can be set to display as follows 'John Doe (ATLASSIAN) <jira@atlassian.com>'.

JDK 1.5 Compatibility

JIRA 3.2 is now fully compatible with JDK 1.5!

Bug Fixes

This release includes nearly 200 bug fixes - the best way to see them is them is to ask JIRA - JIRA 3.2 Bug Fixes.

> **Upgrading to JIRA 3.2**
> Please refer to the following documentation regarding the upgrade process to JIRA 3.2 from previous versions - JIRA 3.2 Upgrade Guide

JIRA 3.2 Upgrade Guide

This page contains information you need to know when upgrading to JIRA 3.2. The general upgrade instructions can be found here.

1. If you have written any Custom Field Type plugins please refer to this document
2. If you have created any Workflow plugins (custom Validators or Post Functions) please read this document.
3. If you have any custom file based workflows (workflows *not* created through JIRA's Workflow Editor) please read this document.
4. If you wish issues that are associated with the default system workflow and are closed to be bulk editable - please read this.

Notifications now respect permissions

In 3.2, JIRA respects the permission scheme and security levels when sending notifications (see JRA-5743. People who won't be able to see an update online won't get a notification email.

This has one important effect: if you have a project where:

- the notification scheme specifies that a raw email address (eg. developers@mycompany.com) should be notified, and
- 'Browse' permission has not been granted to 'Anyone' (eg. it is granted to 'jira-users'
  then that email address ('developers@mycompany.com' in our example) won't be mailed. As JIRA cannot verify that the recipient(s) of the email address have the 'browse' permission, it makes the conservative assumption that they are not.

This can be fixed by creating a user (eg. 'developers') for the email address, making it a member of a group that has 'Browse' permission, and adding it as a recipient of notifications. The raw email address should then be removed from the notification scheme, as it serves no purpose.

Notifications no longer sent to raw email addresses if anonymous browsing disabled

In 3.2, JIRA respects the permission scheme and security levels when sending notifications (see JRA-5743. People who won't be able to see an update online won't get a notification email.

This has one important effect: if you have a project where:

- the notification scheme specifies that a raw email address (eg. developers@mycompany.com) should be notified, and
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This can be fixed by creating a user (eg. 'developers') for the email address, making it a member of a group that has 'Browse' permission, and adding it as a recipient of notifications. The raw email address should then be removed from the notification scheme, as it serves no purpose.

Restricting Edit based on Issue Status

Restricting Edit based on Issue Status

JIRA 3.2 ensures that issues cannot be bulk edited if they cannot be edited normally due to their workflow status. The default workflow restricts issues in the *Closed* status from being edited.

Restricting Edits

A new property - **jira.issue.editable** - has been added that allows the administrator to specify which statuses/steps within a workflow are editable. The administrator can set the flag to be false for a given status - any issue assocaited with the workflow in this status will not be editable or bulk editable.

An example can be found in the default workflow - the **Closed** status has the property key set to false - restricting the ability to bulk edit any issue in this status.

In order to change this behaviour, it is necessary to copy and edit the default workflow and associate your issues with the new workflow.

Upgrading custom CustomFieldTypes in JIRA 3.2

Changes to the custom field types code

For JIRA 3.2, there has been incremental upgrades to the custom fields code. If you have written your own Custom Field Types, you'll want to read this document. We recommend that you ensure that your custom field types still compile against the latest 3.2 build and verify this under a testing environment before putting it into production. It is vital that at the time of the data upgrade, all of your custom field types are functioning correctly, or else they may not be upgraded correctly.

- CustomFieldType Interface changes
- Velocity template changes
- Abstract class changes
- CustomFieldType deal with CustomFieldConfig and not CustomField objects

CustomFieldType Interface changes

There has been some new methods added to the CustomFieldType interface. You may need to implement them if you didn't extend one of the existing concrete classes or AbstractCustomFieldType. The main change here is that FieldValidationException are now thrown instead of CustomFieldValidationException and the addition of two methods.

```
/**
     * Return the String value object from the CustomFieldParams. The object may be a single
String (e.g. TextCFType,
     * List of Strings (e.g. MultiSelectCFType) or CustomFieldParams of Strings (e.g.
CascadingSelectCFType)
     *
     * @param parameters - CustomFieldParams containing String values
     * @return String value object from the CustomFieldParams
     */
    public Object getStringValueFromCustomFieldParams(CustomFieldParams parameters);

    /**
     * Returns a List of {@link CustomFieldConfigItemType} objects.
     * This opens up possibilities for configurable custom fields
     *
     * @return List of {@link CustomFieldConfigItemType}
     */
    public List getConfigurationItemTypes();
```

Velocity Template Changes

The parameters passed to velocity templates for view and editing custom fields have also significantly changed. To update your velcoity templates, you should change your headers to be:

```
#controlHeader ($action $customField.id $customField.name $fieldLayoutItem.required
$displayParameters.noHeader)
...
#controlFooter ($action $fieldLayoutItem.fieldDescription $displayParameters.noHeader)
```

Abstract class changes

There has also been changes to the abstract CustomfFieldTypes with an addition of a GenericConfigManager dependency. You'll need to add this to all constructors of classes which extends them. You can use GenericConfigManager as an arbitrary data store.

CustomFieldType deal with CustomFieldConfig and not CustomField objects

Custom fields can now be configured differently per context. Thus the CustomFieldType now gets passed the CustomFieldConfig object (which is an instance of the configuration set) rather than just the CustomField themselves.

Upgrading Workflow Plugins for JIRA 3.2

If you have written a workflow plugin (Validator or Post Function) for JIRA 3.0 or 3.1 you might have to modify it to make it work for JIRA 3.2. If you are getting ClassCastExceptions while transitioning issues through workflow after upgrading to JIRA 3.2 there is a high chance that this document is what you are looking for.

> Workflow Conditions still use GenericValues for issues, so if you have written a custom Workflow Condition it should work with JIRA 3.2

Regular Workflow Transition

For a regular workflow transition in JIRA 3.1 the `transientVars` map contained a GenericValue object that represented an issue. The `transientVars` Map also contained the fields that were changed during the transition (if any), namely Fix Versions, Assignee and Resolution.

In JIRA 3.2 an Issue object has been created, and all the changes that have been made to the issue can be obtained from the Issue object:

```
Issue issue = (Issue) transientVars.get("issue");
Map modifiedFields = issue.getModifiedFields();
```

Please note that in version of JIRA 3.1 and earlier the `transientVars` map contained a `GenericValue` object with the key "issue". If your code does something like:

```
GenericValue issue = (GenericValue) transientVars.get("issue");
```

This will cause a ClassCastException in JIRA 3.2. You need to cast the object to `Issue` instead of `GenericValue`. If you need to get the `GenericValue` of the issue, you can do that by calling:

```
GenericValue issueGV = issue.getGenericValue();
```

As mentioned earlier, the `modifiedFields` map contains all the fields that have been updated during the workflow transition. The keys of the `modifiedFields` map are ids of fields (please see `com.atlassian.jira.issue.IssueFieldConstants`) that have been modified, and the values of the `modifiedFields` map are `ModifiedValue` objects. A ModifiedValue object represents an updated field. The object stores the old and the new value of the field for the issue. You can use this object like so

```
Map modifiedFields = issue.getModifiedFields();
for (Iterator iterator = modifiedFields.keySet().iterator(); iterator.hasNext();)
{
    String fieldId = (String) iterator.next();
    ModifiedValue modifiedValue = (ModifiedValue) modifiedFields.get(fieldId);
    // Old value of the field
    Object oldValue = modifiedValue.getOldValue();
    // New Value of the field
    Object newValue = modifiedValue.getNewValue();

}
```

Please note, that the `comment` and `commentLevel` are still recorded in the `modifiedFields` map.

Initial Workflow Transition

An initial workflow transition is the transition that creates an issue.

In JIRA 3.1 and earlier the `transientVars` map contained the field values that should be used to create an issue. In JIRA 3.2 the value of the fields are recorded in the Issue object rather than in the `transientVars` map. You can use various getter methods to retrieve values of these fields. For example, if you need to get issue's description, instead of doing:

```
String description = (String) transientVars.get(IssueFieldConstants.DESCRIPTION);
```

do this:

```
Issue issue = (Issue) transientVars.get("issue");
String description = issue.getDescription()
```

Using Oracle 10g drivers to solve the 4000 character limitation

As you might be aware Oracle has a 4000 character limitation on VARCHAR2 fields. Which causes quite a few headaches when dealing with custom workflows or working with issues that have long descriptions, comments or custom field values.

Fortunately Oracle have worked around the VARCHAR2 limitation in their latest Oracle 10g JDBC driver. This fix (described online here) works with Oracle 9 and 10. We strongly recommend using Oracle 10g drivers and the setup described below if you are using Oracle 9i or 10g.

> Even though Oracle suggests that Oracle 10g drivers work with Oracle 8i, users have reported problems with this configuration.

Please follow the Upgrading JIRA Safely instructions, keeping the following in mind:

Use Oracle 10g driver

This configuration will work **only** with Oracle 10g drivers. Therefore, from Oracle's site download the ojdbc14.jar (or applicable) JDBC driver, and copy it to your app server's lib/ directory (eg. common/lib/ for Tomcat). Remove the old JDBC jar used previously.

Create a new database for JIRA 3.2

Please create a **new** database for JIRA 3.2 and configure JIRA's data source to use it. Please do *not* point JIRA 3.2 at your old database.

Set the SetBigStringTryClob flag

When configuring the data source for the new database set the SetBigStringTryClob flag to true. The way this must be done depends on your application server

JIRA Standalone, Tomcat 4 and 5.0:

Edit conf/server.xml (Tomcat 4) or conf/Catalina/localhost/jira.xml (Tomcat 5.0), locate the section where the 'jdbc/JiraDS' DataSource is set up, and add:

```
<parameter>
  <name>connectionProperties</name>
  <value>SetBigStringTryClob=true</value>
</parameter>
```

For instance, in JIRA Standalone one would then have:

```
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"/>
    <ResourceParams name="jdbc/JiraDS">
      <parameter>
        <name>driverClassName</name>
        <value>oracle.jdbc.driver.OracleDriver</value>
      </parameter>
      <parameter>
        <name>url</name>
        <value>jdbc:oracle:thin:@<database host machine>:<port>:<SID></value>
      </parameter>
      <parameter>
        <name>username</name>
        <value>...</value>
      </parameter>
      <parameter>
        <name>password</name>
        <value>...</value>
      </parameter>

<parameter>
  <name>connectionProperties</name>
  <value>SetBigStringTryClob=true</value>
</parameter>

      <parameter>
        <name>factory</name>
        <value>org.apache.commons.dbcp.BasicDataSourceFactory</value>
      </parameter>
    </ResourceParams>
```

Tomcat 5.5

In Tomcat 5.5, the format for the added section would be:

```
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
    username="jirauser"
    password="jirauser"
    driverClassName="oracle.jdbc.driver.OracleDriver"
    url="jdbc:oracle:thin:@localhost:1521:jiradb"

connectionProperties="SetBigStringTryClob=true">

</Resource>
```

Orion / OC4J

For Orion/OC4J, edit config/data-sources.xml, and add the property as a nested tag:

```
<data-source
    class="<datasource driver class>"
    name="<name>"
    location="<location>"
    xa-location="<xa-location>"
    ejb-location="<ejb-location>"
    url="<url>"
    connection-driver="<driver>"
    username="<login>"
    password="<password>"
    inactivity-timeout="30"
>
  <property name="SetBigStringTryClob" value="true" />
</data-source>
```

Other app servers

Consult the relevant JIRA app server guide and the app server documentation to find how to add the property.

Use oracle10g field-type-name

Please specify **oracle10g** (*not* oracle) as the `field-type-name` when editing `WEB-INF/classes/entityengine.xml`

After the data is re-imported and JIRA upgrades the data the 4000 character limitation should disappear.

Workflows using default "Closed" status

Prior to JIRA 3.2, workflow steps using the default "Closed" JIRA status had the special behaviour that disabled certain operations such as "Edit". Since 3.2, this behaviour has been made available to **all** workflow steps, regardless to status. You can disable issue editing on a workflow step by adding a meta attribute "jira.issue.editable=false" to the relevant steps.

For backwards compatibility, all workflow steps with the "Closed" step that is stored in the database have been upgraded to have this new meta attribute. So for the majority of users, JIRA will have already done the upgrading for you. For those with workflows that are stored in the file system, you will have upgrade manually (if you want the closed status to disallow edits). Instructions are below:

Upgrading file based workflows

> You only need to do this upgrade if you have created workflows as XML documents on disk and if you want the step to disallow edits. For most JIRA installations workflows are created using the workflow editor. These workflows will be upgraded automatically.

First, find the workflow step with the status id of 6 (closed)

```
<meta name="jira.status.id">6</meta>
```

Simply add the following to the step:

```
<meta name="jira.issue.editable">false</meta>
```

Restart JIRA and all the new changes should take effect.

3.2 performance benchmarks

Here are some quick benchmarks to illustrate the performance improvements in JIRA 3.2 vs. 3.1.1.

Return to the 3.2 release notes

Sample JIRA data details

Issues	14862
Comments/changes	38294
Users	9163 (most inactive)

Performance comparison

Operation	3.1.1	3.2

Full reindex	429s	287s
Search	37s	1.1s

Search returning first 25 of 14,862 issues, average over multiple runs.

System

Software: JIRA 3.1.1 Enterprise; all issues cached.
System: 2.6Ghz Pentium 4
Database: MySQL 4.1.9

JIRA 3.2.3 Release Notes

JIRA 3.2.3 Release Notes

In the tradition of frequent and worthwhile updates, JIRA 3.2.3 is released today in Standard, Professional and Enterprise editions. This point release includes 16 bug fixes and improvements. It can be downloaded here. See the JIRA 3.2 Upgrade Guide before upgrading.

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.2.3 includes 16 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.2.2 Release Notes

JIRA 3.2.2 Release Notes

In the tradition of frequent and worthwhile updates, JIRA 3.2.2 is released today in Standard, Professional and Enterprise editions. This point release includes over 30 bug fixes and improvements. It can be downloaded here. See the JIRA 3.2 Upgrade Guide before upgrading.

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

JIRA 3.2.2 includes over 30 bug fixes and improvements.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.2.1 Release Notes

JIRA 3.2.1 Release Notes

In the tradition of frequent and worthwhile updates, JIRA 3.2.1 is released today in Standard, Professional and Enterprise editions. This point release includes over 50 bug fixes and improvements. It can be downloaded here. See the JIRA 3.2 Upgrade Guide before upgrading.

JIRA 3.2.1 includes over 50 bug fixes and improvements.

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.1 Release Notes

JIRA 3.1 Release Notes

Following JIRA 3.0.3, Atlassian is proud to release the latest version of JIRA in Standard, Professional and Enterprise editions - **JIRA 3.1** (download).

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

In the tradition of frequent, worthwhile upgrades, JIRA 3.1 includes over 80 bug fixes, improvements and new features. See the JIRA 3.0 Upgrade Notes before upgrading.

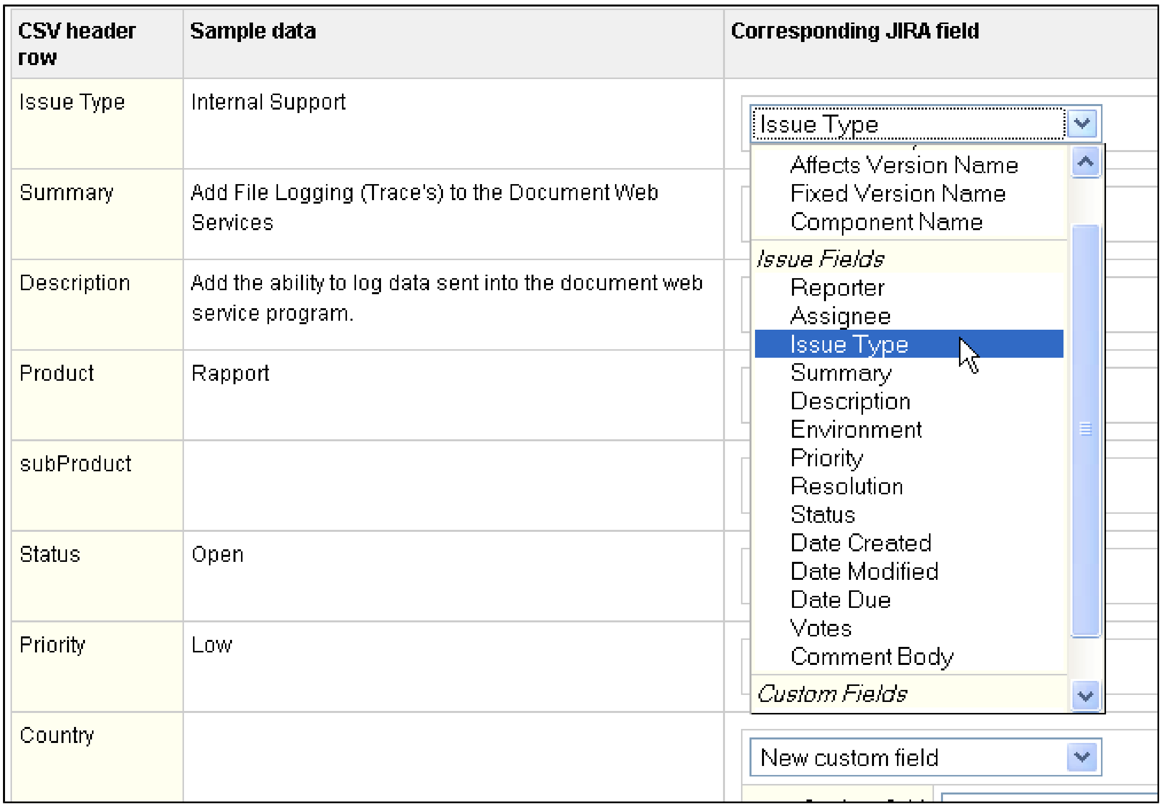
Contents

1. New Features
2. Improvements
3. Bug Fixes
4. Editions

New Features

CSV Importer Wizard

The CSV importer, new in JIRA 3.1, allows you to import issues from any comma-separated file. JIRA's fully configurable wizard will step you through the process of converting your import file into JIRA issues.



The wizard provides the following features:

- Automatic creation of missing users, versions and components
- Easy creation of resolutions, priorities and issue types.
- Creation of custom fields on the fly
- Simple mapping of issue values to values in JIRA

Webwork Plugin Type

JIRA 3 plugins allow developers to extend JIRA in many different ways - with new reports, custom fields, workflow conditions and more. JIRA 3.1 gives developers even more power with the webwork plugin type: enabling plugin creators to integrate their own actions right into JIRA's web framework.

Add Comment on 'View Issue' field

A much-requested feature, you can now see what you are commenting on! The comment panel is now displayed in the same page as the issue details, so you don't have to switch between comment and issue to remember what you're talking about.

Size parameter must be a number (optionally followed by 'px', 'pt' or 'em').

Workflow Action Keyboard Shortcuts

For the power-user or just the impatient, alt-1 to alt-9 (ctrl-1 to ctrl-9 on OS X) will execute the corresponding workflow action for an issue.

Improvements

RPC / SOAP Improvements
The RPC/SOAP integration with JIRA has been improved to include new types (e.g. RemoteGroup, RemoteUser, RemotePermission, etc.) and new services (e.g. IssueService. ProjectService, UserService, etc.). A full list of the new features is available here.

Improved Performance

JIRA 3.1 includes a number of performance improvements. Most notably, the data import process has been revised - now requiring less memory with the process completing in less time. The import process should also handle invalid characters encountered in the XML. A number of reports regarding slow responses from JIRA while editing workflows have also been addressed.

Assign Issues by Mail

The 'Create Issue Handler' can be configured so that issues created via email are automatically assigned to the user listed in the email's 'CC:' field.

Internet Explorer UI Compatibility

This release contains many fixes addressing issues with Internet Explorer UI incompatibilities. All pages should appear identically - whether viewed in IE or Firefox or Safari or ...

Notable Bug Fixes

JIRA 3.1 includes over 70 Bug Fixes.

jiraissues: JIRA project does not exist or you do not have permission to view it.

Notable Bug Additions

The following bugs have been reported so far, and will be fixed in 3.1.1:

jiraissues: JIRA project does not exist or you do not have permission to view it.

Edtions

Standard? Professional? Enterprise? Which edition is for you?

In order to provide you with greater choice, JIRA is offered in a number of editions - with different feature sets and capaibilities available in each edition.

Check out the feature comparison at:

http://www.atlassian.com/software/jira/comparison.jsp

or download an evaluation to determine which edition best addresses your requirements.

JIRA 3.1 Upgrade Notes

This page lists a few things to be aware of when upgrading from JIRA 3.0.x to JIRA 3.1. To perform the actual upgrade, see the upgrade documentation. For upgrading from JIRA 2.x to JIRA 3.x see JIRA 3.0 Upgrade Notes

MySQL Users dB upgrade (JRA-5635)

The size of the descriptor field in the jiraworkflow table has been increased. MySQL users will see warnings when they start their app server. This can be fixed by running the SQL below. This will also allow for Workflows of up to 4GB as opposed to just 64k

```
alter table jiraworkflows change DESCRIPTOR DESCRIPTOR LONGTEXT;
```

JIRA 3.1.1 Release Notes

JIRA 3.1.1 Release Notes

In the tradition of frequent and worthwhile updates, JIRA 3.1.1 is released today in Standard, Professional and Enterprise editions. This point release includes over 40 bug fixes along with a number of improvements and new features. It can be downloaded here. See the JIRA 3.1 Upgrade Notes before upgrading.

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

New Features, Improvements and Bug Fixes

This release includes a number of new features and improvements - including:

- Ability to specify custom field values while creating an issue via XML-RPC/SOAP
- Improved translations for various locales.
- New custom field - DateTime
- Fixed portlet hyperlinks

JIRA 3.1.1 also includes over 40 Bug Fixes.

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.0 Release Notes

Atlassian is proud to present the next major evolution in JIRA - JIRA 3.0! These are the release notes for the final release of JIRA 3.0. There are addendum pages for 3.0.1, 3.0.2 and 3.0.3.

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

Existing customers who wish to upgrade, or new users who wish to try out JIRA 3.0 for 30 days can download either the standalone or WAR distributions from the Atlassian website.

What's new in JIRA 3.0?

JIRA 3.0 is the second major JIRA overhaul (after 2.x), and the largest release in Atlassian's short history. As always, all existing customers who are still within the 12 months maintenance period can upgrade for free, thanks to the provision for one year of free upgrades in your license.

You will find JIRA 3.0 contains many significant new features as well as the many, many enhancements, bug fixes and things we just couldn't resist throwing in at the last minute. By our calculations, over 400 issues were collectively resolved for JIRA 3.0!

New JIRA editions

Previously, JIRA came in 2 flavours - Professional and Enterprise. JIRA 3.0 marks the introduction of a new family member, JIRA Standard edition, which fits below the Professional edition. For more details on what features are in which editions - see JIRA 3.0 Feature Comparison.

Note: all existing JIRA Professional licenses who are still within the 12 months maintenance period are able to upgrade to JIRA 3.0 Professional at no cost - so for example if you are a JIRA 2.x Professional customer, you can upgrade to JIRA 3.0 Professional and will get all the Professional features.

Upgrading from previous versions

Upgrading JIRA should be pretty easy, see the JIRA 3.0 Upgrade Notes, and the guide to upgrading JIRA.

Documentation

The JIRA 3.0 documentation is online here.

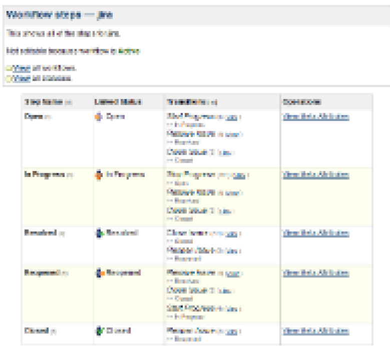
Contents

1. New Features
2. Improvements

New Features

JIRA 3.0 contains a lot of major new features - more than in any other single release of JIRA. Let's look at a few of the most important ones:

Workflow Editor & Configurable Workflow



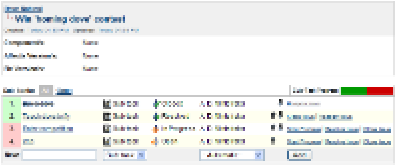
The most anticipated new features in JIRA 3.0 are the workflow editing features. JIRA now contains a workflow editor (see screenshot) that allows you to view and edit workflows through the web interface, in the Professional and Enterprise editions. The workflow controls the set of steps which an issue moves through in order to move to a resolution.

Editor features:

- Workflows can be created with arbitrary steps (linked to statuses) and transitions between them.
- Statuses can be added and removed through the web interface.
- Conditions, functions, validators are now JIRA plugins (see below for details of the new plugin system):
    - Conditions allow you to govern when transitions can be executed and by whom (for example the transition from "Open" to "Closed" can only be executed by a user with the "Close Issue" permission).
    - Functions control exactly what happens after a workflow transition is executed (for example an event is fired, an issue field is changed or an email is sent).
    - Validators ensure that the data provided for a transition is correct.

Multiple Workflows - Enterprise users can configure multiple workflows for their JIRA installation, assigning a default workflow to each project, and then overriding that workflow for particular issue types if required (via a new workflow scheme). This powerful feature allows an issue to progress through a uniquely tailored workflow - one specifically designed for the life-cycle of that issue.

Sub-tasks



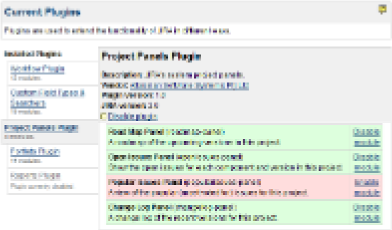
Issues are like people, they come in all shapes and sizes - large and small. Sometimes a given issue will be solved in multiple 'stages', often by different people. This is the genesis behind the sub-tasks feature.

Sub-tasks allow you to break an issue up into multiple tasks, each of which is a full issue in itself (with its own individual workflows). As you can see from the screenshot here, sub-tasks are very rapid to create and manipulate almost never requiring you to leave the View Issue screen.

Unlike other issues, sub-tasks also have a defined order and the issue contains an indicator of overall sub-task progress (see arrows and red/green indicators on screenshot).

As with all issue types, Enterprise users can override the default project workflow association and specify a custom workflow for each sub-task type.

Plugin System



JIRA now has a plugin system. This means that developers can build plugins, which extend the functionality of JIRA in different ways, plugged in at multiple points within the interface.

Detailed information for developers interested in building their own plugins will be coming soon, but as a summary: each plugin is one or more classes and a simple XML plugin descriptor. Often plugins will also contain Velocity templates to render portions of the UI as necessary. A brief guide to JIRA plugins is available here.

Each plugin consists of one or more plugin modules, each of a specific type (see below). Both plugins and individual modules can be disabled or enabled through the administration interface (see screenshot).

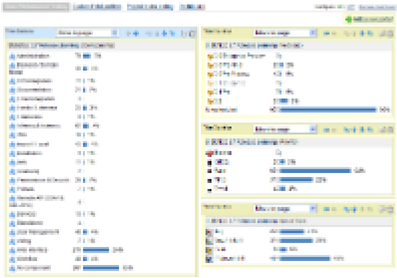
The 12 current module types shipping with JIRA 3.0 are:

- Reports - define a report with the information collected to run it and the resulting HTML.
- Portlets - define portlets and the parameters they accept when configured.
- Custom Field Types - define new types of custom fields (for example a "User Picker") including their rendering templates.
- Custom Field Searchers - provide index and search capabilities to custom field types.
- Issue Tab Panels - add new panels to the View Issue screen (like existing "Comments" and "Version Control" panels).
- Project Tab Panels - add new panels to the Browse Project screen (like existing "Roadmap" and "Popular Issues" panels).
- SOAP RPC Endpoints - define new SOAP web services for JIRA.
- XML-RPC Endpoints - define new XML-RPC web services for JIRA.
- Components - implement new components within JIRA (or override existing components) that are provided to other plugin modules (via PicoContainer).
- Workflow Conditions / Functions / Validators - define extra conditions, functions and validators to be used in your JIRA workflow.

Upcoming Plugins

The popular requests for Subversion and Perforce support within JIRA will be addressed with the forthcoming release of two new plugins. While providing support for these extensions to JIRA, they are also great examples of creating plugins within the new plugin system. These plugins are due to be released shortly.

Dashboard Overhaul



The Dashboard has long been one of the best, most loved features in JIRA. With JIRA 3, it gets a whole lot better!

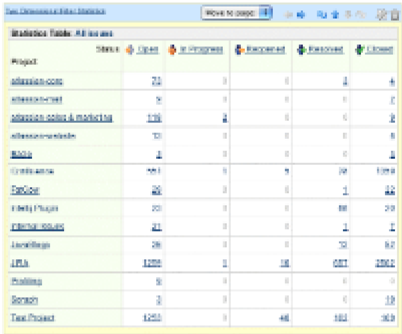
Inline Editing - the usability of the Dashboard has been greatly improved with the new inline editing mode. This allows you to move, add, delete and edit your portlets from the Dashboard itself, instead of having to switch back and forth to the Dashboard configuration screen (see screenshot).

Pluggable Portlets - portlets within JIRA have now moved within the plugin system as well, enabling easy creation and sharing of portlets with other users.

Filter Statistics Portlet - a new, very useful portlet has been added which allows you to calculate statistics for any saved filter. For example, you can create a filter showing the currently open issues assigned to yourself for a particular project - and then put a chart of those issues onto your Dashboard, broken down by component.

Two Dimensional Filter Statistics Portlet - building on the Filter Statistics portlet, this portlet allows you to display statistics from a filter in a configurable table. The X and Y axis of the table are configurable - for example, issue type against priority - and provides a powerful tool for manipulating the display of the statistics.

Multiple Dashboard Pages - And, to save the best for last, you can now have multiple dashboard pages in the Professional and Enterprise editions. This allows you to create multiple, named Dashboard pages which show up as different tabs on screen (see top right hand side of



screenshot).

This is extremely useful in a number of scenarios. Often we've noticed that users' Dashboard pages become extremely long (up to 10 screens!) due to adding more statistic portlets - multiple dashboards allows you to split up these long pages. If you work with multiple projects it is fantastic to be able to create a Dashboard per project, each with relevant statistics providing deeper insight into the project.

Custom Fields

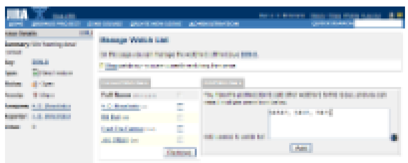
Custom Field Types - The custom field system has been completely overhauled for JIRA 3.0 (thanks to Joseph Dane of Hawaii University for the initial impetus!). Custom field types are now JIRA plugins, so new custom field types can be easily created, installed and shared by users. Custom fields themselves can now support multiple values, multiple search methods and can have configurable view / edit / search templates.

For example, imagine you wished to connect certain internal users within your organisation with a particular field in your issue. You could create an 'internal user' custom field type edited with a simple drop down select box of user's full names pulled from a remote web service. To display this custom field, you could have a completely different template which actually included a picture of that user from your intranet!

New System Types - Using this custom field system, we've created a number of new custom field types for JIRA 3.0. The existing custom fields - text field, free text, select list, date picker and number field - all still exist, but now they're joined by the following new types out of the box:

- User Picker - choose a user from the user base via a popup picker window.
- Project Picker - choose from projects that the user can view in the system.
- Cascading Select - choose multiple values using two select lists.
- Multi Checkboxes - choose multiple values using checkboxes.
- Multi Select - choose multiple values in a select list.
- Radio Buttons - a list of radio buttons.
- URL Field - allow the user to input a single URL.
- Read-only Text Field - a read-only text label (only possible to create values programatically).
- Version Picker - choose from available versions in the project.

Voting and Watching



The most voted for JIRA feature has arrived! Users with the "Edit Watcher List" permission can now update and remove watchers. In this way, other users can be added as watchers of a particular issue (for example, I may want to make sure that Bob is notified of changes to a given issue).

For visibility, there is also a new governing "View Watchers and Voters" permission. Users with this permission can see the list of people who have voted on or are watching an issue.

The number of votes an issue has can now also be added to the issue navigator.

Other New Features

- **Change Reporter** - the second most requested JIRA feature has also arrived! Users with the "Modify Reporter" permission can now update the reporter of an issue.
- **Clone Issue** - you can now duplicate existing issues, optionally linked to the original issue. The sub-tasks of an issue are also cloned if any exist.
- **Multiple Attachments** - you can now upload multiple attachments at the same time if you want
- **Attachments while Creating** - attachments can also be added while creating the issue in a single step, rather than the existing two step 'create issue', 'attach file' process.
- **XML issue view** - each issue can now be viewed or downloaded as XML, including its comments and custom fields.

Improvements

There were many, many improvements made in JIRA 3.0, here are the major items of note:

- **Version management** - version management has been overhauled and versions now have a due date.
- **Issue Navigator** - sorting of columns has been extended with the ability to sort by Versions, Fix for Versions and Components (sorting on the earliest of each found).
- **CVS integration** - improved hugely in JIRA 3.0. JIRA can now access CVS repositories via SSH and the local file system (in addition to the existing pserver support), as well as display branch information for commits. The performance has also been worked on a lot, such that CVS access now requires a near constant amount of memory regardless of repository size.
- **More languages** - JIRA has now been translated to German, Spanish, Danish, Russian, French and Brazilian Portuguese.
- **Issue linking** - you can now link multiple issues at a time, as well as use search filters to find issues to link.
- **Project keys** - there is a configurable regular expression to govern the project key structure within JIRA.
- **SSO support** - JIRA integrates with a number of existing single sign-on frameworks, and can easily be customised to work with custom SSO systems.
- **Remote API** - the SOAP and XML-RPC remote APIs are distributed as a plugin, which can be updated independently of the main JIRA installation.
- **Remote Issue Creation** - issues can now be created and retrieved via the remote APIs.
- **Field Layouts** - Enterprise users can now define field layout schemes for each issue type within a project.
- **Reports** - there is now a version workload report (thanks to the JetBrains developers for this contribution) which shows the

estimated times against developers for a given version.
- **Email notifications** - Improvements have been made to the format of notifications sent out by JIRA, especially text emails.
- **Startup time** - JIRA should now start up *much* faster than it did previously!
- **User interface** - As always, we've worked on improving the user interface in various areas (most notably the browse projects screen and the version administration screen).

and much, much more...

JIRA 3.0 Upgrade Notes

This page lists a few things to be aware of when upgrading from previous releases of JIRA to JIRA 3. To perform the actual upgrade, see the upgrade documentation.

Existing SMTP Mail Server 'From' address may break notifications (JIRA-5089)

In JIRA 3, email notification 'From' addresses now contain the reporter name, eg. "Joe Bloggs (JIRA) <jira@company.com>", where "jira@company.com" is set by the admin as the SMTP mail server From address. If you have this address to already include a name (eg "Tech Support <jira@company.com>", then email notifications will fail with errors like:

```
2005-01-06 11:30:53,856 ERROR [atlassian.mail.queue.MailQueueImpl]
com.atlassian.mail.MailException: Sending failed;
  nested exception is: javax.mail.internet.AddressException:
Missing '<' in string ``"Joe Bloggs (JIRA)" <Tech Support <jira@company.com>>'' at position 62
```

Fix

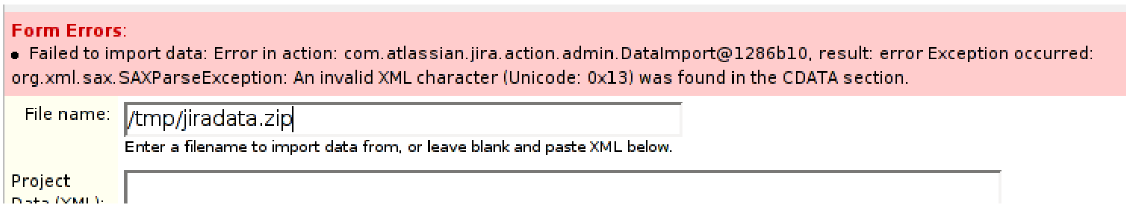
The fix is to edit `WEB-INF/classes/jira-application.properties`, and change the following property value to `false`:

```
jira.option.include.user.in.mail.from.address = true
```

- If using JIRA Standalone, the file is *atlassian-jira/WEB-INF/classes/jira-application.properties*, after which you should run bin/shutdown and bin/startup to restart.
- If using JIRA deployed as a webapp, copy *webapp/WEB-INF/classes/jira-application.properties* to *edit-webapp/WEB-IFN/classes*, make the change to the *edit-webapp* copy, run *build* to rebuild the webapp, and redeploy it on your app server.

Invalid characters break XML import

JIRA's recommended upgrade process involves deploying an XML backup of your data. Some users will find that the import fails with this error:



This is usually because the database contains control characters that cannot be represented in Unicode, and hence XML.

Fix

The fix is to follow these instructions to remove the invalid characters from the XML before import.

JIRA 3.0.3 Release Notes

JIRA 3.0.3 is a bugfix release. For the full list of changes from 2.x releases, see the JIRA 3.0 Release Notes. The JIRA 3.0 Upgrade Notes apply.

Changes since 3.0.2:

Bugs fixed:

jiraissues: JIRA project does not exist or you do not have permission to view it.

Improvements:

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.0.2 Release Notes

JIRA 3.0.2 is a bugfix release, mainly to address a performance problem with the 'find issues' page when there are large numbers of projects. For the full list of changes from 2.x releases, see the JIRA 3.0 Release Notes. The JIRA 3.0 Upgrade Notes apply.

Changes since 3.0.1:

Bugs fixed:

jiraissues: JIRA project does not exist or you do not have permission to view it.

Improvements:

jiraissues: JIRA project does not exist or you do not have permission to view it.

JIRA 3.0.1 Release Notes

JIRA 3.0.1 is a minor bugfix release. For the full list of changes from 2.x releases, see the JIRA 3.0 Release Notes. The JIRA 3.0 Upgrade Notes apply.

Issues addressed since 3.0

Bugs fixed:

JIRA 3.0.1 fixes one bug, which prevented users importing backup data into an empty JIRA instance:

jiraissues: JIRA project does not exist or you do not have permission to view it.

See also JIRA 3.0.2 Release Notes

JIRA 2.6 Release Notes

JIRA 2.6

Only three months after the release of JIRA 2.5 (and two after our last point-release), Atlassian are continuing our tradition of frequent, worthwhile upgrades with JIRA 2.6. In the process, we've fixed more than 110 known bugs, and added over 70 individual improvements or new features. All a free upgrade if you've purchased your JIRA license in the last year.

> **JIRA 4.3** has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
> *Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!*

As always, we strongly encourage you to back up your data before upgrading.

Contents

1. New Features
2. Improvements
3. Notable Bug-fixes
4. Outstanding Issues
5. Enterprise Features

New Features

CVS Integration

Prior to 2.6, the only way to integrate JIRA with CVS was via syncmail, a clumsy and error-prone solution. For 2.6, we have overhauled the CVS support so that now JIRA can get all the information it needs directly from the CVS repository itself. Wherever a JIRA issue key is mentioned in a CVS commit message, JIRA will link the commit to the issue, as shown below:

Enterprise customers also have the ability to associate multiple CVS repositories with a single project, just in case your project spans multiple repositories, or moves from one to another.

Quick Search

The quick search bar on the top right of the screen is a very useful feature in JIRA, allowing you to quickly jump to an issue by its key, or run a full text search. If you use the keyboard shortcut (*ALT+Q*), then it is even quicker.

In JIRA 2.6, we've made the quick search even more powerful: it now tries much harder to guess what you are searching for. It will recognise the following in your search terms, and narrow your search accordingly.

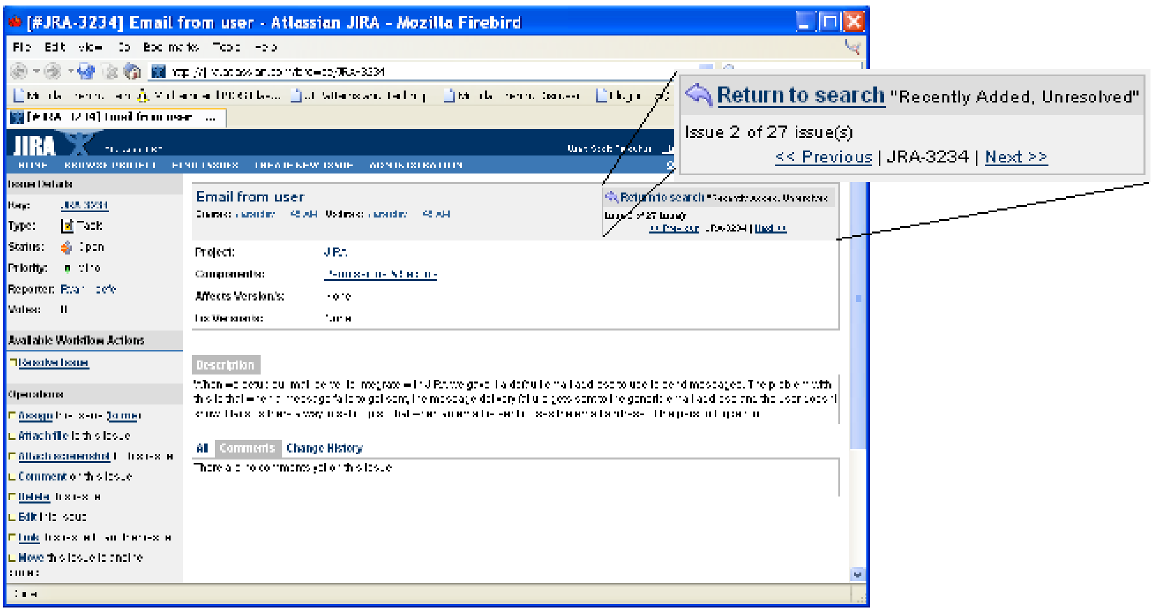
- Project keys
- Project names (single word names only)
- Issue statuses
- Issue types
- "my"

So, for example:

- "JRA open bugs" will search for all open bugs in the JIRA project.
- "my JIRA open improvements" will search for all open improvements in the JIRA project that are assigned to you.

Streamlined Search Results

On the subject of searching, we've improved the site's navigation by giving you the ability to move through your list of search results without returning to the search results page. When you visit an issue from a search, the navigation box shown below will allow you to skip quickly to the next and previous results, conveniently bound to the hot-keys *ALT+N* and *ALT+P* respectively. *ALT+F* will take you back to the search results page.



Per-Search Column Ordering (Enterprise)

Users of the Enterprise version of JIRA can now have custom column-ordering for each of their saved searches (previously, there was just one column-ordering preference that applied to every search). This gives you much more power to build custom issue reports containing just the information you want to know, in the right order.

XML-RPC/SOAP interface to JIRA

JIRA now has an external programmatic API, a much-demanded feature from users who wanted a more direct way to interact with their issue-tracker, or to integrate JIRA more seamlessly with their business. It also provides a raft of new features for Mark Derricutt's Intellij IDEA JIRA Plugin. The API is available in SOAP and XML-RPC flavours, and is documented here.

You can also get an XML view of any issue by adding '?view=rss' to the end of any issue page's URL.

If you come up with some interesting use for the API, or application that takes advantage of it, let us know. Similarly, if you have any suggestions for features that would make the API more useful to you, don't hesitate to tell us.

Screenshots and Thumbnails

Our new screenshot feature makes it easy to attach screenshots to your issue: it's as simple as pasting your screenshot directly into the applet provided, and hitting enter. (Currently, this feature is only available for Windows clients)

Any image that is attached to an issue is automatically displayed as a thumbnail, giving you a much better idea of what each attachment might contain. You can see an example of this online: JRA-2789. These thumbnails can also be configured to display in search results, for organisations that make heavy use of screenshots in issue reports.

Trackback and Confluence Integration

Confluence is the latest Atlassian product, and you can now link Confluence docs to JIRA issues and vice versa. When a JIRA issue contains a link to a Confluence page the server will automatically inform Confluence that it has been linked to, so Confluence can in turn refer back to the issue. This works both ways, of course, so when a Confluence page refers to a JIRA issue, JIRA also links back to the page. (For example, see http://jira.atlassian.com/browse/JRA-2789)

This is all done with the standard trackback API. Trackback is also widely supported by weblogging software, so you can see when people are talking about a particular issue on their blogs.

If you don't want trackback, you can easily turn it off in the administrative configuration. (By default, JIRA will receive trackback pings, but not send them)

Email Integration

JIRA's email integration is greatly improved. For people sending email to JIRA:

- JIRA can be configured to create new user accounts for anyone who sends an email to JIRA who does not already have an account (great for support!)
- HTML emails that do not contain a plaintext alternative will be converted to text
- Email attachments are automatically added as attachments to the issue

And for people receiving email from JIRA:

- Emails sent by JIRA are properly threaded, so if your email client supports threading, all notifications on a particular issue will be grouped together.
- JIRA's emails will no longer prompt mail clients to send 'vacation' messages (which previously would cause erroneous issues to be created)
- JIRA can be configured to use a different "from" address per project.
- Administrators can now send emails to a group of JIRA users from within JIRA.

Release Notes

JIRA can now produce release notes: a cleanly formatted changelog of issues that have been resolved since the previous version. You can see the 2.6 Professional release notes online, or read the documentation.

The release-notes page contains a convenient text-box that allows you to cut and paste the HTML source directly from JIRA to your website.

Page Compression

JIRA now ships with a gzip filter, which will compress pages before sending them to the web browser. In some pages, this results in a size-reduction of 90%, massively decreasing download times and bandwidth usage for JIRA installations. This is most useful for installations of JIRA on the Internet: if you enable it on your LAN, the time the server takes to compress the pages will likely be greater than the time saved by them being compressed.

It is not enabled by default, but can be enabled from the Administration pages.

Improvements

Internationalisation

- Searching in all UTF-8 languages is now supported.
- The process of translating JIRA has been improved: adding support for a new language is now as simple as dropping in the localised jar file and restarting.
- The Calendar popup window now works in your selected language.
- JIRA i18n now works on Resin 2.1.12 on linux.

Bulk Edit

- Bulk deleteof issues is now supported

- Bulk edit can set issues' fix-for version

Import
There is now a Mantis import available, and the Bugzilla import has been greatly improved.

Other Features

There are 70 new features or improvements. Take a look.

Notable Bug-fixes

There are over 110 Bug Fixes in this release. If you raised a bug, chances are that it is fixed.

Outstanding Issues

- Currently we only have internationalised files for JIRA 2.5.3, so much of the interface is only half translated. We are in the process of co-ordinating the translation of 2.6, and new translations will be made available in future 2.6 point releases.
- If you are upgrading from 2.6 RC1, mail threading may not work correctly for issues that were created before the upgrade unless you upgrade via export / import. Issues created after upgrading to the 2.6 release will thread correctly.
- The printable view for a single issue is broken: it just redirects you to the normal, less printer-friendly page.

All JIRA Release Notes (version 3.x and later)

This page lists the release notes from JIRA versions 3.x and later.

You may be interested in the list of upgrade guides from JIRA versions 3.x and later.

Page: JIRA 4.1.2 Release Notes
Page: JIRA 4.1.1 Release Notes
Page: JIRA 4.1 Release Notes
Page: JIRA 4.0.2 Release Notes
Page: JIRA 4.0.1 Release Notes
Page: JIRA 4.0 Release Notes
Page: JIRA 3.13.5 Release Notes
Page: JIRA 3.13.4 Release Notes
Page: JIRA 3.13.3 Release Notes
Page: JIRA 3.13.2 Release Notes
Page: JIRA 3.13.1 Release Notes
Page: JIRA 3.13 Release Notes
Page: JIRA 3.12.3 Release Notes
Page: JIRA 3.12.2 Release Notes
Page: JIRA 3.12.1 Release Notes
Page: JIRA 3.12 Release Notes
Page: JIRA 3.10.2 Release Notes
Page: JIRA 3.11 Release Notes
Page: JIRA 3.10.1 Release Notes
Page: JIRA 3.9.3 Release Notes
Page: JIRA 3.9.2 Release Notes
Page: JIRA 3.9.1 Release Notes
Page: JIRA 3.10 Release Notes
Page: JIRA 3.9 Release Notes
Page: JIRA 3.8.1 Release Notes
Page: JIRA 3.8 Release Notes
Page: JIRA 3.7.4 Release Notes
Page: JIRA 3.7.3 Release Notes
Page: JIRA 3.7.2 Release Notes
Page: JIRA 3.7.1 Release Notes

Page: JIRA 3.6.5 Release Notes
Page: JIRA 3.6.4 Release Notes
Page: JIRA 3.7 Release Notes
Page: JIRA 3.6.3 Release Notes
Page: JIRA 3.6.1 Release Notes
Page: JIRA 3.6.2 Release Notes
Page: JIRA 3.6 Release Notes
Page: JIRA 3.5.3 Release Notes
Page: JIRA 3.5.2 Release Notes
Page: JIRA 3.5.1 Release Notes
Page: JIRA 3.5 Release Notes
Page: JIRA 3.4.1 Release Notes
Page: JIRA 3.4 and 3.4.1 Release Notes
Page: JIRA 3.3.3 Release Notes
Page: JIRA 3.3.2 Release Notes
Page: JIRA 3.3.1 Release Notes
Page: JIRA 3.3 Release Notes
Page: JIRA 3.2.3 Release Notes
Page: JIRA 3.2.2 Release Notes
Page: JIRA 3.2.1 Release Notes
Page: JIRA 3.2 Release Notes
Page: JIRA 3.1.1 Release Notes
Page: JIRA 3.1 Release Notes
Page: JIRA 3.0.3 Release Notes
Page: JIRA 3.0.2 Release Notes
Page: JIRA 3.0.1 Release Notes
Page: JIRA 3.0 Release Notes

All JIRA Upgrade Guides (version 3.x and later)

This page lists the upgrade guides from JIRA versions 3.x and later. You can also view the aggregated upgrade guides from JIRA versions 3.x and later (***warning:** the aggregated upgrade guides page is big!*).

If upgrading from a previous version of JIRA please pay attention to the *Upgrade Guide* of the version you are upgrading to, and any version of JIRA that you are 'skipping' during the upgrade.

You may be interested in the list of release notes from JIRA versions 3.x and later.

Page: JIRA 4.3 Upgrade Guide
Page: JIRA 4.2.4 Upgrade Guide
Page: JIRA 4.2.3 Upgrade Guide
Page: JIRA 4.2.2 Upgrade Guide
Page: JIRA 4.2.1 Upgrade Guide
Page: JIRA 4.2 Upgrade Guide
Page: JIRA 4.1.2 Upgrade Guide
Page: JIRA 4.1 Upgrade Guide
Page: JIRA 4.0.2 Upgrade Guide
Page: JIRA 4.0.1 Upgrade Guide
Page: JIRA 4.0 Upgrade Guide
Page: JIRA 3.9.3 Upgrade Guide
Page: JIRA 3.9.2 Upgrade Guide

Page: JIRA 3.9.1 Upgrade Guide
Page: JIRA 3.9 Upgrade Guide
Page: JIRA 3.8.1 Upgrade Guide
Page: JIRA 3.8 Upgrade Guide
Page: JIRA 3.7.4 Upgrade Guide
Page: JIRA 3.7.3 Upgrade Guide
Page: JIRA 3.7.2 Upgrade Guide
Page: JIRA 3.7.1 Upgrade guide
Page: JIRA 3.7 Upgrade Guide
Page: JIRA 3.6.5 Upgrade guide
Page: JIRA 3.6.4 Upgrade guide
Page: JIRA 3.6.3 Upgrade guide
Page: JIRA 3.6.2 Upgrade guide
Page: JIRA 3.6.1 Upgrade Guide
Page: JIRA 3.6 Upgrade Guide
Page: JIRA 3.5.3 Upgrade Guide
Page: JIRA 3.5.2 Upgrade Guide
Page: JIRA 3.5.1 Upgrade Guide
Page: JIRA 3.5 Upgrade Guide
Page: JIRA 3.4.3 Upgrade Guide
Page: JIRA 3.4.2 Upgrade Guide
Page: JIRA 3.4 and 3.4.1 Upgrade Guide
Page: JIRA 3.3.3 Upgrade Guide
Page: JIRA 3.3.1 Upgrade Guide
Page: JIRA 3.3 Upgrade Guide
Page: JIRA 3.2 Upgrade Guide
Page: JIRA 3.13.5 Upgrade Guide
Page: JIRA 3.13.4 Upgrade Guide
Page: JIRA 3.13.3 Upgrade Guide
Page: JIRA 3.13.2 Upgrade Guide
Page: JIRA 3.13.1 Upgrade Guide
Page: JIRA 3.13 Upgrade Guide
Page: JIRA 3.12.3 Upgrade Guide
Page: JIRA 3.12.2 Upgrade Guide
Page: JIRA 3.12.1 Upgrade Guide
Page: JIRA 3.12 Upgrade Guide
Page: JIRA 3.11 Upgrade Guide
Page: JIRA 3.10.2 Upgrade Guide
Page: JIRA 3.10.1 Upgrade Guide
Page: JIRA 3.10 Upgrade Guide
Page: JIRA 3.1 Upgrade Notes
Page: JIRA 3.0 Upgrade Notes

Aggregated JIRA 3.x Upgrade Guides

This page contains a live aggregate of all JIRA upgrade guides since version 3. You can also view the lists of Release Notes or Upgrade Guides for JIRA.

JIRA 2.x to 3

This page lists a few things to be aware of when upgrading from previous releases of JIRA to JIRA 3. To perform the actual upgrade, see the upgrade documentation.

Existing SMTP Mail Server 'From' address may break notifications (JRA-5089)

In JIRA 3, email notification 'From' addresses now contain the reporter name, eg. "Joe Bloggs (JIRA) <jira@company.com>", where "jira@company.com" is set by the admin as the SMTP mail server From address. If you have this address to already include a name (eg "Tech Support <jira@company.com>", then email notifications will fail with errors like:

```
2005-01-06 11:30:53,856 ERROR [atlassian.mail.queue.MailQueueImpl]
com.atlassian.mail.MailException: Sending failed;
  nested exception is: javax.mail.internet.AddressException:
Missing '<' in string ``"Joe Bloggs (JIRA)" <Tech Support <jira@company.com>>'' at position
62
```

Fix

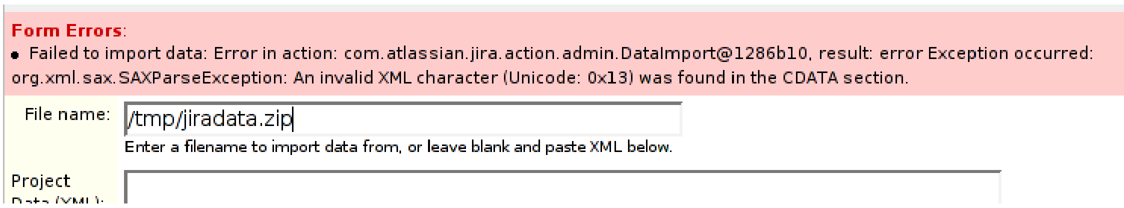
The fix is to edit `WEB-INF/classes/jira-application.properties`, and change the following property value to `false`:

```
jira.option.include.user.in.mail.from.address = true
```

- If using JIRA Standalone, the file is *atlassian-jira/WEB-INF/classes/jira-application.properties*, after which you should run bin/shutdown and bin/startup to restart.
- If using JIRA deployed as a webapp, copy *webapp/WEB-INF/classes/jira-application.properties* to *edit-webapp/WEB-IFN/classes*, make the change to the *edit-webapp* copy, run *build* to rebuild the webapp, and redeploy it on your app server.

Invalid characters break XML import

JIRA's recommended upgrade process involves deploying an XML backup of your data. Some users will find that the import fails with this error:



This is usually because the database contains control characters that cannot be represented in Unicode, and hence XML.

Fix

The fix is to follow these instructions to remove the invalid characters from the XML before import.

JIRA 3.0 to 3.1

This page lists a few things to be aware of when upgrading from JIRA 3.0.x to JIRA 3.1. To perform the actual upgrade, see the upgrade documentation. For upgrading from JIRA 2.x to JIRA 3.x see JIRA 3.0 Upgrade Notes

MySQL Users dB upgrade (JRA-5635)

The size of the descriptor field in the jiraworkflow table has been increased. MySQL users will see warnings when they start their app server. This can be fixed by running the SQL below. This will also allow for Workflows of up to 4GB as opposed to just 64k

JIRA 3.1 to 3.2

This page contains information you need to know when upgrading to JIRA 3.2. The general upgrade instructions can be found here.

1. If you have written any Custom Field Type plugins please refer to this document
2. If you have created any Workflow plugins (custom Validators or Post Functions) please read this document.
3. If you have any custom file based workflows (workflows *not* created through JIRA's Workflow Editor) please read this document.
4. If you wish issues that are associated with the default system workflow and are closed to be bulk editable - please read this.

Notifications now respect permissions

In 3.2, JIRA respects the permission scheme and security levels when sending notifications (see JRA-5743. People who won't be able to see an update online won't get a notification email.

This has one important effect: if you have a project where:

- the notification scheme specifies that a raw email address (eg. developers@mycompany.com) should be notified, and
- 'Browse' permission has not been granted to 'Anyone' (eg. it is granted to 'jira-users'
  then that email address ('developers@mycompany.com' in our example) won't be mailed. As JIRA cannot verify that the recipient(s) of the email address have the 'browse' permission, it makes the conservative assumption that they are not.

This can be fixed by creating a user (eg. 'developers') for the email address, making it a member of a group that has 'Browse' permission, and adding it as a recipient of notifications. The raw email address should then be removed from the notification scheme, as it serves no purpose.

JIRA 3.2 to 3.3

JIRA 3.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.3 from JIRA 3.2.x. If upgrading from an older version of JIRA, please go to the complete list of Upgrade Guides, and read the notes for each version you are skipping during the upgrade.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Known incompatibilities

3.3.x is not a good release for IBM shops:

1. JIRA 3.3.x may not work on **Websphere 5.0.x and 5.1.x** due to JRA-7699
2. When using DB2, JIRA may hang when deleting projects or performing workflow operations. See the full problem description (and possible workaround) in the documentation

Websphere or DB2 users, please stick with 3.2.x or move on to 3.4.x or higher, where these problems have been resolved.

Notes on upgrading

1. Due to web browser caches, changes to JIRA's Issue Navigator might appear corrupted or unstyled. Please refresh your browser's cache (press *Shift+Reload* on the Find Issue's page) for the changes to appear correctly.
2. JIRA's **issue cache** size will be automatically set to 0 during the upgrade, as it is no longer needed due to performance improvements in JIRA (JRA-7166)
3. If you have written any CustomFieldType or CustomFieldSearcher plugins please refer to this document
4. Users with **outgoing** trackback pings enabled (not the default) may wish to disable this until JRA-7589 is fixed, to avoid the risk of the mail queue hanging.
5. If you have bookmarks or deal with hard coded links to the issue navigator, you should read about the changed issue navigator parameters
6. If you are **using JIRA Standalone**, please do *not* simply copy your old `conf/server.xml` file to the new installation of JIRA. Please read this document.
7. If upgrading JIRA in an external Tomcat installation, be sure to delete the `work/` temporary directory before restarting JIRA, to clear cached JSPs from the old JIRA.

JIRA 3.3 to 3.3.x

JIRA 3.3.1 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.3.1 from JIRA 3.3.

> If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below:

1. If you have implemented a cutom Issue Tab Panel plugin you need to be aware of this API change.

> If you are upgrading to JIRA 3.3.1 from a previous version, due to web browser caches, changes to JIRA's Issue Navigator might appear corrupted or unstyled. Please refresh your browser's cache (press Shift+Reload on the Find Issue's page) for the changes to appear correctly.

JIRA 3.3.x to 3.4.x

JIRA 3.4 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.4 from JIRA 3.3.3. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.

> Two major new features of JIRA 3.4, wiki renderer previews, and issue types per project require that javascript be enabled to make use of their full functionality. You will still be able to use all the core features of JIRA with javascript disabled.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

1. Please do **not** copy `jira-application.properties` file from your old JIRA installation. Edit the file that is shipped with JIRA 3.4 and make needed changes. New properties have been added to this file so if you simply copy the old file across the following error would occur JRA-8645.
2. If you have written any CustomFieldType or CustomFieldSearcher plugins please refer to Upgrading Custom Field Types in JIRA 3.4
3. The default user preferences are now configured in the jira-application.properties file and are configurable through the admin section of JIRA. Any properties in the old file preferences-default.xml will no longer effect JIRA configuration.
4. Please note that to configure issue types per project you must have JavaScript turned on in your web browser.
5. If you are using MySQL please do not use Connector/J 3.1.11 JDBC Driver as it has the following bug. Connector/J 3.1.10 and earlier work fine.

JIRA 3.4.1 Upgrade Guide

This section contains specific information you need to know when upgrading to JIRA 3.4.1 from JIRA 3.4. If upgrading from JIRA 3.3.3 please read the previous section as well. If upgrading from an older version than JIRA 3.3.3, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

1. Please do **not** copy `jira-application.properties` file from your old JIRA installation. Edit the file that is shipped with JIRA 3.4 and make needed changes. New properties have been added to this file so if you simply copy the old file across the following error would occur JRA-8645.
2. If you have written a CustomFieldType that implements the `com.atlassian.jira.issue.customfields.CustomFieldType` interface directly rather than extending one of the Abstract classes that ship with JIRA please read Upgrading Custom Field Types in JIRA 3.4.1.
3. If you have written an Custom Field Searcher please have a look at Upgrading Custom Field Types in JIRA 3.4.1.
4. JIRA 3.4 and 3.4.1 do not generate an Issue Assigned event. The Issue Updated event is generated instead. In previous versions of JIRA the Issue Assigned event was generated when issues are assigned using the "Assign" operation on the View Issue page. This means that even when the "Assign" operation is used JIRA will send notifications to parties listed under the Issue Updated event. The patch to correct this behaviour is available at JRA-8533.

JIRA 3.4.2 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.4.2 from JIRA 3.4.1. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.4.1 to JIRA 3.4.2.

JIRA 3.4.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.4.3 from JIRA 3.4.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.4.2 to JIRA 3.4.3.

JIRA 3.4.x to 3.5.x

JIRA 3.5 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5 (release notes) from JIRA 3.4.3. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

JIRA 3.5 Jira Service extension

> - If you have implemented a custom JIRA service you need to be aware of the following API change.

In JIRA 3.5 the `getName()` and `setName(String name)` methods was added to the `com.atlassian.jira.service.JiraService` interface. This method should return and set the name of the service respectively. The name of the service can be used to identify a service uniquely. (Fixed made due to JRA-8352 bug)

Therefore, if you have implemented this interface, you will need to implement these methods and recompile your service(s) before deploying it into JIRA 3.5. If you have extended a JIRA class instead, e.g. `com.atlassian.jira.service.AbstractService` or `com.atlassian.jira.service.JiraServiceContainer` you do not need to modify your custom services.

Introduction of global **Bulk Change** permission

JIRA 3.5 introduces the global **Bulk Change** permission. This permission governs the ability to execute the bulk change operations:

- Workflow Transition
- Edit
- Move
- Delete

An upgrade task has been added to grant the new **Bulk Change** permission to all groups with the global **JIRA Users** permission.

The JIRA documentation includes further details on this new permission.

> The decision to grant the **Bulk Change** permission should be considered carefully - the permission permits a user to modify a collection of accessible issues at once. For example, in JIRA installations configured to run in 'Public' mode (anybody can sign up and create issues), a user could comment on all accessible issues with the **Bulk Change** and **Add Comments** permission. Undoing such modifications may not be possible through the JIRA UI and may require changes made directly against the database.

CustomFieldPersister changes

CustomFieldPersister is used to store custom field values to database. The methods of this class has been refactored to remove the redundant parameter, `defaultValueMarker`. For example, the create values method went from:

to:

You will need to update and recompile any `CustomFieldType` that you wrote to use this new interface.

VersionCFType Changes

This affects plugin writers who uses the version custom field `VersionCFType`. The change is that previously the Transport Object type was a single `Version` object, but it is now a collection that contains a single `Version` object.

This was done to handle an improved version custom field which can be a mutli-select version custom field as well

JIRA 3.5.1 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5.1 from JIRA 3.5. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.5 to JIRA 3.5.1.

JIRA 3.5.2 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5.2 from JIRA 3.5.1. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Issue Event Changelog Can Now Be Null

- If you have implemented a custom JIRA Issue Event Listener you need to be aware of the following API change.

In JIRA 3.5.2, the IssueEvent object thrown as a result of an edit operation, **may now return null** from a `getChangeLog()` call. The case where this happens is when a user chooses to edit an issue but only leaves a comment and makes no other changes to the issue. Prior to 3.5.2 no event was fired in this case and this was identified as a bug (JRA-9415) and has since been fixed. Check any calls to getChangeLog() for null.

JIRA 3.5.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.5.3 from JIRA 3.5.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.5.3 from JIRA 3.5.2.

JIRA 3.5.x to 3.6.x

JIRA 3.6 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.x from JIRA 3.5.x. If upgrading from an older version of JIRA, please go to the complete list of Upgrade Guides, and read the notes for each version you are skipping during the upgrade.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Database Intensive Upgrade Task

To introduce the Custom events to JIRA, it was necessary to upgrade a large data set within JIRA's database for 3.5.x and earlier releases. Depending on the size of your JIRA data the upgrade task (number 150) might get your DBMS to do a lot of work which might take some time. The exact amount of time also depends on the processing power of the machine running JIRA's database.

Please be patient with the upgrade task and do not restart JIRA while the upgrade is in progress. The upgrade task will report on its progress to JIRA's log file as it upgrades your data.

The following is the sample output that the upgrade task will produce. As you can see the upgrade task took roughly 5 and a half minutes to modify over 660,000 records in the database.

Workflow Post Functions

Applies to	users with custom workflow XMLs saved on disk - external to JIRA

JIRA stores its workflows in the database. During the upgrade, these workflows will be upgraded automatically. However, if you have stored your workflows on disk (outside the database), you will need to follow these instructions to upgrade the workflows manually.

Previously, workflow post functions referenced the event to fire through a string value of the event name. All post functions now reference the event through a numeric ID value. As mentioned, all workflows stored within JIRA will be automatically updated. However, all workflows saved to disk - external to JIRA - should be updated manually as follows. The actual workflow XML file should be updated as follows:

For each workflow post function that accepts the event ID as an argument:

1. The value of the **name** attribute of the **arg** tag has to be changed from **eventType** to **eventTypeId**
2. The body of the **arg** tag has to change according to the following table:

Event Name	Event Type Id
created	1
updated	2
assigned	3
resolved	4
closed	5
commented	6
reopened	7
deleted	8
moved	9
worklogged	10
workstarted	11
workstopped	12
genericevent	13

By default, the only post functions that accept event IDs are *FireIssueEventFunctions.* Therefore, unless you have implemented your own custom post function that also deals with events, you will only need to update the arg tags for the *FireIssueEventFunctions* everywhere in the workflows.

For example, *FireIssueEventFunction* for create issue workflow transition looked like:

and needs to be changed to:

Custom Events

Applies to	users who have **modified JIRA source code or added custom code to define new notification events**. Also of interest to users wishing to define new notification templates

Releases before JIRA 3.6 did not allow users create custom events. If you have modified the JIRA source to add custom events - please follow these instructions.

If you have previously defined a custom event within JIRA - it is necessary to add appropriate entries to the following files:

- `system-event-types.xml`- used to install and upgrade all event types within the system to the new 3.6 event type object.
- `email-template-id-mappings.xml` - maps the event id to an assocaited velocity template file.

The `system-event-types.xml` file requires name and description details of the previously added custom event. For example, if the custom event type "Issue Frozen" was added to the system - the following entry should be added to the XML file:

The elements provide the following information:

- id - the new id for the event type. **All custom event types should be added from ID 10000 and above**
- notificationName - the original name for the event as found in the Notification table
- eventName - the origianl name for the event as found in workflows

The `email-template-id-mappings.xml` file requires an entry mapping the new custom event to an associated velocity email template. This mapping is used when a notification is sent for this event. Following from the above example, the following entry would be made:

The id should match that of the event as specified in the `system-event-types.xml` The `template` entity should reference the Velocity template to be used in email notifications of this event. A HTML and text version should be provided in the appropriate directory (html or text) at:

`<JIRA>/src/etc/java/templates/email/`

All custom event types added to the file *system-event-types.xml* should be added with an ID of 10000 and above

Custom Listeners

Applies to	users who have **added custom listeners** to JIRA.

For all users who have **added custom written** listeners to JIRA, it might be necessary to update the listener to follow the new JIRA 3.6 API.

There are two things to look out for:

1. signature change of the *workflowEvent* method
2. change of return type of *getIssue()* method on the *IssueEvent* object

The signature of the method *workflowEvent* in the *IssueEventListener* has changed from:

to:

Note: the type parameter has been removed.

If you have implemented *IssueEventListener* directly or have extended *AbstractIssueEventListener* and have overridden the method *workflowEvent*, you will need to change and recompile your listener before installing JIRA 3.6.

In JIRA 3.6, the event type ID can be retrieved by calling the following method on the *IssueEvent* object:

However, the returned value of the *getId()* method is different to the values of the type parameter that was passed to the *workflowEvent* method. The following table represents these differences:

Event Name	Old ID	New ID
created	0	1
updated	1	2
assigned	2	3
resolved	3	4
closed	4	5
commented	5	6
reopened	6	7
deleted	7	8
moved	8	9
worklogged	9	10
workstarted	10	11
workstopped	11	12
genericevent	-1	13

Also, the *getIssue()* method of the *IssueEvent* object has changed to return an Issue object instead of a *GenericValue* object representing an issue.

Users who have created and added custom listeners must update the listener to now operate with the *Issue* object. For example:

As a quick fix, you can modify your listener to use `event.getIssue().getGenericValue()`.

The event type ID constants are now only available from the class *EventType*. Any use of the original constants must be updated to use the *EventType* constants. For listeners that reference an event ID by its numeric value - it is necessary to ensure that the IDs now match those as defined in *EventType*.

Custom permission types

Applies to	users who have modified JIRA source to add new permission types (ie. in addition to the standard 'user', 'group', 'assignee' types).

The SecurityType interface, used to implement permission types ('single user', 'group' etc) has had a `getUsers()` method added. If you have implemented your own SecurityType you will need to implement this. See the source of current implementations (eg. `GroupCF`) for tips.

Plugin upgrades required

As usual, you should check whether the plugins you use are compatible with the new release. Generally, plugins (like the Subversion plugin or JIRA toolkit) need to be upgraded when JIRA is upgraded. See the list of plugins at:

http://confluence.atlassian.com/display/JIRAEXT/Home

JIRA 3.6.1 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.1 from JIRA 3.6. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.6.1 from JIRA 3.6.

JIRA 3.6.2 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.2 from JIRA 3.6.1. If upgrading from an older version of JIRA, please go to the complete list of Upgrade Guides, and read the notes for each version you are skipping during the upgrade.

When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

Maximum Active Databased Connections

Applies to	JIRA Standalone users

In version of JIRA before 3.6.2, the maximum number of database connections was limited to 8 by default. If JIRA was used by more than 8 concurrent users or under very haeavy usages, the users could experience delays or JIRA could hang.

In JIRA 3.6.2 the default number of maximum active database connections has been increased to 20. When upgrading to JIRA 3.6.2, please ensure that your database will allow JIRA to establish 20 connections, or decrease this number to desired value. To adjust the number of connections change the value of the `maxActive` attribute of the `jdbc/JiraDS` resource in `config/server.xml` file. JIRA has to be restarted to apply the change.

JIRA 3.6.3 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.3 from JIRA 3.6.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.6.3 from JIRA 3.6.2.

JIRA 3.6.4 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.4 from JIRA 3.6.3. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading to JIRA 3.6.4 from JIRA 3.6.3.

JIRA 3.6.5 Upgrade Guide

This page contains specific information you need to know when upgrading to JIRA 3.6.5 from JIRA 3.6.4. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading to JIRA 3.6.5 from JIRA 3.6.4.

JIRA 3.6.x to 3.7.x

Once you have upgraded to JIRA 3.7, downgrading to a previous version is not a straightforward task and is not recommended.

JIRA 3.7 Upgrade Notes

This page lists a few things to be aware of when upgrading from previous releases of JIRA to JIRA 3.7. To perform the actual upgrade, see the upgrade documentation.

Note: If you are upgrading from a pre-3.6.5 release, please also refer to the relevant JIRA 3.x Upgrade Guides.

Please note that JIRA 3.7 requires JDK 1.4 or above. Support for JDK 1.3 has been discontinued.

Please note that some new functionality will not be available if you are running JIRA on WebLogic or Orion. The List All Filtersportlet will not be able to fetch the issue counts for each issue. The new 'Charting' View will also be unavailable. The support for WebLogic and Orion will be added in JIRA 3.7.1.

Database Schema Changes

Due to the upgrade of HSQLDB, and to improve compatibility with Firebird and Frontbase, various database tables and columns have been renamed. For more details on the changes please see the JIRA 3.7 Database Schema Changes document.

Therefore, the easiest way to upgrade to JIRA 3.7 is to follow the Upgrading JIRA safely instructions.

If in the past, instead of performing an XML backup and restore, you have been upgrading by "pointing" new version of JIRA at an old database, this is still possible, however the procedure is more complicated. You will need to use SQL scripts to perform database schema changes. For more information please see the SQL Scripts for 3.6.x to 3.7 schema upgrade document.

If you are using HSQLDB with JIRA, you must follow Upgrading JIRA safely instructions (i.e. perform a full XML backup and restore from XML), as simply copying the `.script` file will not work. The format of the `.script` file has changed between the HSQLDB versions, and therefore, copying the `.script` file will result in the following error on startup.

Request Context Changes

In order for plugins, customfields and portlets to function better outside of a web-context (e.g.: displaying a customfield in an e-mail), all direct references to the HttpServletRequest have been replaced by a VelocityRequestContext. If you have deployed your own plugins, customfields or portlets that use the HttpServletRequest directly (i.e.: any references to `${req}`) than they should be changed to use the new `${requestContext}` object. The `${requestContext}` is an implementation of the `VelocityRequestContext` interface.

Currently the `${requestContext}` supports the following properties:

- `${requestContext.baseUrl}` - Returns the same as HttpServletRequest.getContextPath() or the base URL configured in your JIRA instance if no HttpServletRequest is available
- `${requestContext.requestParameters}` - Returns an implementation of `RequestContextParameterHolder` or null if no HttpServletRequest is available
- `${requestContext.requestParameters.servletPath}` - Returns the same as HttpServletRequest.getServletPath()
- `${requestContext.requestParameters.requestURL}` - Returns the same as HttpServletRequest.getRequestURL()
- `${requestContext.requestParameters.queryString}` - Returns the same as HttpServletRequest.getQueryString()

Integrity Checks

In JIRA 3.7 Database Integrity Checks (available from the Administration section) have been re-written to run as multiple transactions, which increased the throughput of the system while the checks are running. In large JIRA 3.6 (and earlier) installations, integrity checks could cause database lock escalation and stop users from performing operations (e.g. viewing issues).

Please note, that due to the change, each integrity check became about 10% slower.

As integrity checks are quite database intensive operations, it is still recommended to run them during off-peak hours (i.e. while the system is not under heavy load).

Change of commentLevel to groupLevel in the Comment and TransitionWorkflow jelly tags

We have changed the AddComment and TransitionWorkflow jelly tag attribute that specifies the group visibility level from 'commentLevel' to be 'groupLevel'. If you have existing jelly tags that use this attribute it will need to change. This was done so that we could introduce the 'roleLevel' attribute which allows you to specify a project role based visibility. Only one of the two attributes can be specified at a time.

Change of level to grouplevel in the XML view of a Comment

1. We have changed the XML view of a comment, as seen in the XML view of an Issue to contain either a 'grouplevel' attribute or a 'rolelevel' attribute. This attribute defines the visibility level specified on the comment. In the past the 'grouplevel' attribute was simply 'level'. If you have any existing custom code that expects the 'level' attribute in the Comment XML it must change to expect 'grouplevel'.
2. In previous versions of JIRA the XML view of the <comment> tag level attribute was always shown, even if there was no value for the level, it was rendered as an empty attribute. We have changed it so that the attributes themselves (grouplevel and rolelevel) do not display if there is no value.

Change to the RemoteComment object used via SOAP/RPC plugin

The RemoteComment object and therefore the remote SOAP/RPC api has changes to almost all properties. The 'roleLevel' attribute was added and the following attributes have changed:

1. level -> groupLevel
2. datePerformed -> created
3. username -> author

ActionManager removed

The `ActionManager` interface has been removed and its functionality has been delegated to new interfaces. For details please refer to ActionManager Removed documentation

Removal of 'Backend Actions'

1. We have removed the 'Backend Action' `com.atlassian.jira.action.action.WorklogCreate` if you were using this class in a plugin or custom code you will now need to use the `com.atlassian.jira.issue.worklog.WorklogManager` this now has method calls to return worklogs for a given user+issue and also create worklog entries.
2. We have removed the 'Backend Action' `com.atlassian.jira.action.action.ActionCreate` if you were using this class to create comments you will need to modify your code to use one of the create methods on the com.atlassian.jira.bc.issue.comment.CommentService

Issue Events

We have modified the `com.atlassian.jira.event.issue.IssueEvent` class to no longer use GenericValues. The GenericValue representing the comment is replaced by `com.atlassian.jira.issue.comments.Comment` class and the GenericValue representing the worklog is replaced by `com.atlassian.jira.issue.worklog.Worklog` class. If you have a custom listener in a previous version of JIRA this will need to be updated to use the newer IssueEvent class and `com.atlassian.jira.event.issue.IssueEventDispatcher.dispatchEvent(...)` methods.

Renaming of XML export file

By popular request, the XML filename (that is, the default filename when you choose to save the XML view in the Issue Navigator) has been changed from `issuenavigator.jspa` to `SearchRequest.xml`. Should you have any external systems or programs that utilise the exported XML file, please be aware of the changed filename.

Confluence Users Only - Pre 2.2.10 Confluence Must Be Patched To Use JIRA Issues Macro

Unable to render {include} Couldn't find a page to include called: DOC:JIRA 3.7 Link Format Change

JIRA 3.7 Downgrade Notes

Once you have upgraded to JIRA 3.7, downgrading to a previous version is not a straightforward task and is not recommended. Please be aware that in JIRA 3.7 the database schema has changed.

If upgrade to JIRA 3.7 fails, the best way to proceed is to go back to the previous version of JIRA you were using, and to the latest **pre-upgrade** data that you have. The exact steps for doing this depend on how you have upgraded JIRA.

If you have created a new database for JIRA 3.7 by following the Upgrading JIRA safely instructions, you should be able to simply shutdown JIRA 3.7 and bring up the old version of JIRA your were using. The old version should be configured to use its old (unupgraded) database.

If you have upgraded JIRA by pointing JIRA 3.7 to an older database (and ran the SQL Scripts to upgrade the database schema), then you will need to:

1. Create a new database
2. Configure the old version of JIRA you were using to point at the new (empty) database
3. Restore the latest **pre-upgrade** backup that you have
4. Start the old JIRA installation

JIRA 3.7.1 Upgrade Guide

This page contains specific information you need to know when upgrading from JIRA 3.7 to JIRA 3.7.1. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for each version your are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- There are no specific instructions you need to be aware of related to upgrading from JIRA 3.7 to JIRA 3.7.1.

JIRA 3.7.2 Upgrade Guide

This page contains specific information you need to know when upgrading from JIRA 3.7.1 to JIRA 3.7.2. If upgrading from an older version of JIRA, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.
When upgrading JIRA please follow the general upgrade instructions keeping in mind the information below.

- 3.7.2 will automatically perform a full reindex when upgrading. For more details please see JRA-11861

Upgrading from JIRA 3.7.2 to 3.7.3

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.7.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.7.3 to 3.7.4

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.7.2 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.7.x to 3.8.x

Upgrading from JIRA 3.7.4 to 3.8

Please follow the JIRA general upgrade instructions. Additionally, please note the following:

1. The 'Assign To' field name has been changed to 'Assignee' consistently across JIRA. This means that users need to be aware that the column heading in the Excel export has changed to 'Assignee' from 'Assign To'. Please be aware of this if for example you are exporting JIRA data to Excel and running macros on it. The field has been renamed for the following Issue Navigator Views:
   - Excel (all)
   - Word (all)
   - Full Content
2. The `issuecommentedited.vm` e-mail template for the new Issue Comment Edited event has been added to the `WEB-INF/classes/email-template-id-mappings.xml` file. The id of the e-mail template used for sending Filter Subscriptions has changed to 10000. **If** you have manually modified the `WEB-INF/classes/email-template-id-mappings.xml` file in the version of JIRA you are upgrading from, please do not simply copy the old file to JIRA 3.8. You will need to port your changes to the `WEB-INF/classes/email-template-id-mappings.xml` file that is shipped with JIRA 3.8. If you have not changed the `WEB-INF/classes/email-template-id-mappings.xml` file, you do not need to worry about this.
3. Two columns have been added to the `jiraaction` table to support editable comments.

Upgrading from JIRA 3.7.3 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.8 to 3.8.1

Please follow the JIRA general upgrade instructions.

> **Charting Plugin must be upgraded to v1.3.5**
> Please note that the version of JFreeChart included in JIRA 3.8.1 is **not compatible** with older versions of the Charting Plugin. If you have the Charting Plugin installed, please make sure you upgrade it to version 1.3.5 or above.
>
> The updated JFreeChart 1.0.4 version is **not** backwards compatible with the previous 1.0.0pre2 version, so if you have any plugins that utilise JFreeChart, please make sure you test them before upgrading.

Upgrading from JIRA 3.7.4 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.8.x to 3.9.x

Upgrading from JIRA 3.8.1 to 3.9

Please follow the JIRA general upgrade instructions. Additionally, please note the following:

In this version, there has been a change to the database which may cause problems for some customers.

The Recommended Upgrade Method

If you follow the recommended export/import upgrade procedure you should not experience any problems!

Pointing JIRA 3.9 at an existing, non-empty database

Some customers have a good reason for not following the recommended upgrade method. Using this method may result in database errors in your logs. You can avoid this if you modify your table structure manually, but the procedure is different depending on whether you have already started JIRA.

To avoid this, **BEFORE** you upgrade JIRA using this method, you can just drop the qrtz_cron_triggers table. This table has not been used by JIRA before 3.9, so it should be empty.

If you have **ALREADY** started JIRA 3.9 using your existing database, you may see the following log messages when JIRA starts up:

The reason for this is that we have incorrectly changed a column in the `qrtz_cron_triggers` table. The intention was to fix a misspelling, but all we did was remove an underscore ("_")! The old column name is "CRON_EXPERSSION". The new column name is "CRONEXPERSSION". Note that both columns spell the word "expression" incorrectly.

To remove the error message, you must remove the old column as it is redundant. This column will not contain any data. The following table shows all columns in the qrtz_cron_triggers table. Columns that should be present are in **green** and columns that should be deleted are in **red**.

Keep	Keep	Keep	Delete
ID	TRIGGER_ID	CRONEXPERSSION	CRON_EXPERSSION

To delete the column, you can use SQL, but this may be slightly different between databases. Here's how it might look:

```
alter table qrtz_cron_triggers drop column CRON_EXPERSSION;
```

The data in this table

If you have users who have subscribed to issue filters, note that existing SimpleTriggers (time intervals) will be automatically converted into CronTriggers during the JIRA upgrade. In some cases, there may not be an exact mapping of time intervals to Cron Expressions, and approximations will be made (e.g. 'Every 5 weeks' will be converted to 'Once a month'). If this happens, the JIRA upgrade process will send an email to the user to inform them of the new schedule.

Upgrading from JIRA 3.8 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.9 to 3.9.1

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.8.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.9/3.9.1 to 3.9.2

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.8.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 4.3 has been released. Read the full JIRA 4.3 Release Notes and latest Upgrade Guide.
Don't have JIRA 4.3? Take a look at the features of JIRA's latest major version and try it out!

Upgrading from JIRA 3.9.2 to 3.9.3

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.9.1 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.9.x to 3.10.x

Upgrading from JIRA 3.9.3 to 3.10

Please follow the JIRA general upgrade instructions, plus note the following:

1. Plugins

There is a new version of the JIRA Calendar Plugin that links to the new 'Project Version' pages. This new version of the plugin is not backwards compatible.

Please note that the Kaamelot plugin for JIRA has not yet been updated. If you are currently using this plugin, you may want to hold off the upgrade to JIRA 3.10 until a compatible version of this plugin has been released.

2. Developer Notes

The ordering of the ListOrderedMap returned by SchemePermissions.getSchemePermissions() has changed. This also means that the order of the RemotePermission[] array returned by the RPC Plugin's JiraSoapService.getAllPermissions() method has changed. If you have extended your instance of JIRA please confirm that any remote applications retrieving permissions via SOAP still work. You may encounter problems if you have been retrieving specific permissions by their array index.

Database changes

In JIRA 3.10, the worklog records have moved from the 'jiraactions' database table to the new 'worklog' table. This new table contains the following columns:

```
Table "public.worklog"
    Column    |           Type           | Modifiers
--------------+--------------------------+-----------
 id           | numeric(18,0)            | not null
 issueid      | numeric(18,0)            |
 author       | character varying(255)   |
 grouplevel   | character varying(255)   |
 rolelevel    | numeric(18,0)            |
 worklogbody  | text                     |
 created      | timestamp with time zone |
 updateauthor | character varying(255)   |
 updated      | timestamp with time zone |
 startdate    | timestamp with time zone |
 timeworked   | numeric(18,0)            |
```

Upgrading from JIRA 3.9.2 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.10 to 3.10.1

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.9.3 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.10.1 to 3.10.2

Please follow the JIRA general upgrade instructions.

Upgrading from JIRA 3.9.3 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.10.x to 3.11.x

- Upgrading from JIRA 3.10.x to 3.11
- Upgrading from JIRA 3.9.x and earlier

Upgrading from JIRA 3.10.x to 3.11

Please follow the JIRA general upgrade instructions, plus note the following:

Administrative notes

- To take advantage of the performance enhancements in JIRA 3.11, it is recommended that you enable GZip compression (unless you are using mod_proxy).
- The jira-application.properties file has a new option, 'progress', for the following attribute:

  ```
  jira.table.cols.subtasks
  ```

  The 'progress' option controls the display of the '**Progress**' field in issues and reports.

- JIRA 3.11 introduces a bug fix for JRA-12354. This means that the CVS and Perforce plugin will perform better at detecting commits for a particular issue key, avoiding partial matches on similar project keys. If users have taken advantage of the previous relaxed key matching, they can revert to the old behaviour by simply setting the following application property in the jira-application.properties file and restarting JIRA:

  ```
  jira.option.key.detection.backwards.compatible=true
  ```

Plugins

Updating plugins
If you are using any of the following plugins, you will need to update them to their latest versions when performing the upgrade:

- Perforce plugin
- Subversion plugin
- Toolkit Plugin
- Charting Plugin
- RPC Plugin

3rd Party and personal plugins may also be affected (esp. if using lucene to store dates). These will need to be updated as well.

If these are updated after the upgrade (instead of as part of the upgrade), you will need to do a reindex.

A failure to update these plugins will result in lots of errors that look like:

Error 1

```
2007-07-25 15:23:27,553 http-8090-Processor4 ERROR
[charting.charts.createdvsresolved.CreatedVsResolvedChart] Could not create velocity
parameters For input string: "20070725144811"
java.lang.NumberFormatException: For input string: "20070725144811"
 at java.lang.NumberFormatException.forInputString(NumberFormatException.java:48)
 at java.lang.Long.parseLong(Long.java:415)
 at org.apache.lucene.document.DateField.stringToTime(DateField.java:100)
 at org.apache.lucene.document.DateField.stringToDate(DateField.java:104)
 at
com.atlassian.jira.ext.charting.data.DatePeriodStatisticsMapper.getValueFromLuceneField(DatePer
at
com.atlassian.jira.ext.charting.data.OneDimensionalObjectHitCollector.adjustMapForValues(OneDim
at
com.atlassian.jira.ext.charting.data.OneDimensionalObjectHitCollector.collect(OneDimensionalObj
at org.apache.lucene.search.IndexSearcher$1.collect(IndexSearcher.java:137)
 at org.apache.lucene.search.Scorer.score(Scorer.java:49)
 at org.apache.lucene.search.IndexSearcher.search(IndexSearcher.java:146)
 at org.apache.lucene.search.Searcher.search(Searcher.java:118)
 at
com.atlassian.jira.issue.search.providers.LuceneSearchProvider.search(LuceneSearchProvider.java
```

Error 2

```
Caused by: java.lang.NoSuchMethodError:
org.apache.lucene.document.Document.add(Lorg/apache/lucene/document/Field;)V
 at com.atlassian.jira.plugin.labels.LabelSearcher.index(LabelSearcher.java:95)
 at
com.atlassian.jira.issue.index.indexers.impl.DefaultCustomFieldIndexer.addIndex(DefaultCustomFi
at com.atlassian.jira.issue.index.IssueDocument.getDocument(IssueDocument.java:34)
 at
com.atlassian.jira.issue.index.IssueDocumentBuilderImpl.get(IssueDocumentBuilderImpl.java:14)
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$IssueAndCommentCreator.handleIssueInd
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$AbstractIssueAndCommentHandler.indexI
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer.indexIssuesAndComments(SingleThreaded
at
com.atlassian.jira.issue.index.MultiThreadedIssueIndexer.indexIssuesAndComments(MultiThreadedIs
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$2.perform(SingleThreadedIssueIndexer.
at
com.atlassian.bonnie.ConcurrentLuceneConnection.withWriter(ConcurrentLuceneConnection.java:296)
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$1.perform(SingleThreadedIssueIndexer.
at
com.atlassian.bonnie.ConcurrentLuceneConnection.withWriter(ConcurrentLuceneConnection.java:296)
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer.indexIssues(SingleThreadedIssueIndexe
at
com.atlassian.jira.issue.index.SingleThreadedIssueIndexer$6.perform(SingleThreadedIssueIndexer.
```

If you see these errors, please ensure that you are using the latest compatible version of the plugin for 3.11. If there is no supported version for 3.11, please contact the plugin developer via the plugin's homepage.

Developer notes

Modification to SOAP clients
If you have written a SOAP client for any JIRA version prior to 3.11 and are invoking any methods to get `RemoteIssueType` you will encounter the bug JRA-13529. The reason for this is that we have added extra information to the `RemoteIssueType` object that indicates if the issue type is a subTask issue type. To avoid the problem you will need to regenerate your remote object stubs against the updated JIRA 3.11 wsdl.

If you would like your SOAP client to work against multiple versions of JIRA then you need to use the latest stubs that have been generated against JIRA 3.11. You will need to **not** use any of the new functionality and you will need to remember that the `isSubTask` variable in the `RemoteIssueType` objects will be defaulted to `false`.

ThreadLocalQueryProfiler searchers have been moved to ThreadLocalSearcherCache
There may be a number of plugins that reference the ThreadLocalQueryProfiler searcher methods directly. These need to now reference the ThreadLocalSearcherCache.

Lucene Upgrade
We upgraded our version of Lucene to 2.2. If your plugin uses to Lucene to index/read data, please ensure that it works with JIRA 3.11. If you are indexing/reading dates, more than likely it will have broken and you will need to use the new Lucene 2 methods.

Database changes

There were no database changes in this release.

Upgrading from JIRA 3.9.x and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.11 to 3.12.x

Upgrading from JIRA 3.11 to 3.12

Please follow the JIRA general upgrade instructions, plus note the following:

1. Everyone who had the '**JIRA Administrators'** global permission before the upgrade will automatically receive the new '**JIRA System Administrators**' global permission during the upgrade. This will ensure that everyone can still perform the same functions they could previously.
2. The following new Seraph property can be used to fix JRA-10508:
3. Due to the Seraph upgrade, to fix JRA-10508 all users will be prompted to log in again. This will also affect users who have the 'Remember me' checkbox ticked.
4. If you are building JIRA from source, please note that Maven2 is now required for a build. This is because the JIRA Fisheye Plugin requires Maven2.
5. If you are using the JIRA Toolkit, it is recommended that you upgrade to the latest version in order to fix JRA-13553
6. Please note that the new Trusted Applications feature is not supported on Orion versions prior to 2.0.5. Also note that Resin2 has problems and you will need to update the Resin extra jars.
7. There is a new database table. Please see the following page for details

Upgrading from JIRA 3.10.2 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Using the Trusted Applications feature with Crowd

Please note that older versions of the Crowd client, (i.e. version 1.2.1 or earlier), can interfere with the correct operation of the Trusted Applications feature. If you are enabling Trusted Applications and using Crowd, please ensure that your Crowd client is **version 1.2.2 or later**.

Upgrading from JIRA 3.12 to 3.12.1

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.11 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.12.1 to 3.12.2

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.11 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Upgrading from JIRA 3.12.2 to 3.12.3

Please follow the JIRA general upgrade instructions

Upgrading from JIRA 3.11 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

JIRA 3.12.x to 3.13

Upgrading from JIRA 3.12.xx to 3.13

Please follow the JIRA general upgrade instructions, plus note the following:

1. Introduction of Favourite Dashboards and Filters

Favourite Dashboards

JIRA 3.13 introduces the favourite dashboards feature, which allows you to add dashboard pages that are owned by you or shared by other users as favourites (and hence, are displayed as tabs on your dashboard). On upgrade to JIRA 3.13, all your dashboard pages will be added as your favourites and displayed on your dashboard. If you do not wish any of your dashboards to be added as favourites, then you can remove them as favourites after the upgrade. See the dashboards documentation for details.

Favourite Filters

Similar to favourite dashboards, JIRA 3.13 introduces the favourite filters feature, which allows you to add issue filters that are owned by you or shared by other users as favourites. On upgrade to JIRA 3.13, all your issue filters will be added as your favourites. If you do not wish any of your filters to be added as favourites, then you can remove them as favourites after the upgrade. See the issue filters documentation for details.

please note, this change will not affect issue filter sharing, e.g. if you are using a shared issue filter in one of your dashboard portlets, it will still be shared with you after the upgrade.

please also note, that any custom developed portlets (or other JIRA objects that use filters that have been developed by 3rd parties) that have a dropdown list (not a pop-up picker) for filters, will now only show a list of the user's favourite filters, instead of all shared filters.

Favourite Filters portlet

The 'List All Filters' portlet has been replaced with the 'Favourite Filters' portlet in this release. Your dashboard will be automatically upgraded if it is currently configured to display the 'List All Filters' portlet.

2. Tomcat, MySQL database connection dropouts

Please note, if you wish to use a MySQL database with JIRA Standalone you must set up the bundled Tomcat server (version 5.5.26) to survive connection closures. You must also do this if you are running JIRA EAR/WAR in Tomcat 5.5.25 or later, or Tomcat 6.0.13 or later. Versions 5.5.25 and above of Tomcat 5, and versions 6.0.13 and above of Tomcat 6, have been noted to exhibit problems maintaining connections to MySQL databases. Please read this document for details on the changes required.

3. Changes to jira-application.properties

jira.subscription.email.max.issues property

The `jira.subscription.email.max.issues` property has been added to the `jira-application.properties` file. This property allows you to specify the maximum number of issues that can be included in an email subscription. The default value for this property is 200. You may wish to update this property after the upgrade if you wish to set a different limit on the number of issues that can be included in an email subscription. See the documentation on Advanced JIRA configuration with jira-application.properties for further details on this file.

4. Support for Portlet Plugins with JSP Views Discontinued

Portlet plugins with JSP views are no longer supported. If you have written a custom Portlet plugin and have used a JSP as the view template, you will need to convert your JSP to Velocity.

5. Updates to JIRA SOAP and XML-RPC APIs

com.atlassian.jira.rpc.soap.JiraSoapService

- replaced

  with

*You should use **getProjectsNoSchemes()** instead because it much more memory efficient and quicker.*

- added
- deprecated
- added

com.atlassian.jira.rpc.xmlrpc.XmlRpcService

- replaced

  with

- deprecated
- added

6. Crowd Cache Timeout

This is only applicable if you are using Crowd.

The default timeout for caching user details has changed from 5 minutes to 2 hours. This will improve the performance of the application but will mean that it will take longer for changes to user details to reach the application. Details on how to configure the Crowd caches can be found here.

Upgrading from JIRA 3.12 and earlier

In addition to the above, please read the *Upgrade Guide* for every version you are skipping during the upgrade. The complete list of Upgrade Guides is available here.

Important Version-Specific Upgrade Guides

The procedure for upgrading JIRA changes little from one JIRA version to the next. However, each major release of JIRA comes with specific recommendations for upgrading from the previous major version.

If you plan to skip a few JIRA versions for your next JIRA upgrade, then ***we strongly recommend*** reading the upgrade guides for all major versions between your current version and the version to which you are upgrading. These version-specific upgrade guides contain important information that may be relevant to your JIRA installation.

> **For example:**
> If you plan to upgrade from JIRA 4.0 to JIRA 4.3, then read the upgrade guides for JIRA 4.1 and JIRA 4.2, as well as those for JIRA 4.3.

We also recommend that you read the upgrade guides for any minor releases listed below, since these guides contain important information that may be relevant to your JIRA upgrade.

Below is a list of upgrade guides for all previous major and minor releases of JIRA, each of which has important upgrade information:

Upgrade guides for minor releases are indented.

- JIRA 4.3 Upgrade Guide
- JIRA 4.2 Upgrade Guide
    - JIRA 4.2.2 Upgrade Guide
- JIRA 4.1 Upgrade Guide
    - JIRA 4.1.2 Upgrade Guide
    - JIRA 4.1.1 Upgrade Guide
- JIRA 4.0 Upgrade Guide
    - JIRA 4.0.1 Upgrade Guide
    - JIRA 4.0.2 Upgrade Guide
- JIRA 3.13 Upgrade Guide
    - JIRA 3.13.1 Upgrade Guide
- JIRA 3.12 Upgrade Guide
- JIRA 3.11 Upgrade Guide
- JIRA 3.10 Upgrade Guide
- JIRA 3.9 Upgrade Guide
- JIRA 3.8 Upgrade Guide
    - JIRA 3.8.1 Upgrade Guide
- JIRA 3.7 Upgrade Guide
    - JIRA 3.7.2 Upgrade Guide
- JIRA 3.6 Upgrade Guide
    - JIRA 3.6.2 Upgrade Guide
- JIRA 3.5 Upgrade Guide
    - JIRA 3.5.2 Upgrade Guide
- JIRA 3.4 and 3.4.1 Upgrade Guide
- JIRA 3.3 Upgrade Guide
    - JIRA 3.3.3 Upgrade Guide
    - JIRA 3.3.1 Upgrade Guide
- JIRA 3.2 Upgrade Guide
- JIRA 3.1 Upgrade Notes
- JIRA 3.0 Upgrade Notes

You will find the upgrade notes attached to the release notes for the relevant version.

RELATED TOPICS

Production Releases
JIRA Releases

JIRA Release Summary

This page shows the highlights of the major JIRA releases.

Current Release

For information about the latest release, please go to the Release Notes.

JIRA 4.3 — 16 March 2011

- Full Integration with LDAP and Active Directory
- New Plugin Management System
- Improved Importer
- JIRA Now Supports 'In-place Database Upgrades'
- Search for Issue Changes, Relative Dates and Relative Versions with JQL
- Quick Search Enhancements
- Revamped User Avatars
- Improvements to Issue Links
- Remembered Assignees
- Security Enhancements
- Application Links: Connecting Applications Together
- REST API Improvements
- More in release notes

JIRA 4.2 — 21 October 2010

- Keyboard Shortcuts and 'Operations Dialog'
- Editable 'Original Estimate'
- 'Log Work' Fields Available When Resolving Issues
- Labels
- User Avatars
- Viewable ZIP Files
- REST API (Alpha)
- More in release notes

JIRA 4.1 — 8 April 2010

- New-look 'View Issue'
- Streamlined Keyboard Shortcuts
- Customisable Email Subject
- Image Gallery
- ZIP Download of Attachments
- List of Logged-in Users
- JIRA Standalone ships with JIRA Configuration Tool, Database Drivers and Tomcat 6.0
- More in release notes

JIRA 4.0 — 6 October 2009

- Advanced Searching
- Dashboard Gadgets
- Activity Streams
- New-look "Browse Project"
- Charting Now Comes Standard
- New-look Header
- Issue Actions in the Issue Navigator
- Project Icons
- Default Unit for Time Tracking
- "History" is now permanent
- Engine Room
- More in release notes

JIRA 3.13 — 9 September 2008

- Shareable dashboards
- Improved filter sharing
- Favourite filters and dashboards
- Restoring projects
- Editable active workflows
- Enhanced sub-task quick creation
- Personal licenses
- New plugins
- Progress bar for long-running operations
- Application improvements
- More in release notes

JIRA 3.12 — 7 December 2007

- 'Trusted' Confluence
- 'JIRA System Administrators' permission
- FishEye plugin now bundled with JIRA
- Improvements to the Subversion plugin
- Improvements to the 'Project Statistics' and 'Filter Statistic' portlets
- New post function for workflows: 'Assign to Current User'
- Enhanced language support for searching
- Visual SourceSafe plugin
- More in release notes

JIRA 3.11 — 25 September 07

- Sub-task progress shown within issues
- Issue Navigator offers sub-task aggregates
- Time Tracking reports now include sub-tasks
- Multi-project 'Road Map' portlet
- Performance improvements
- Indexing improvements
- JIRA Labels Plugin
- More in release notes

JIRA 3.10 — 9 July 2007

- Editable Worklogs
- Start Date for Worklogs
- New way to browse Components
- New way to browse Versions
- Auto-complete 'User-picker' and 'Issue-picker'
- Auto-complete 'Issue-picker'
- More in release notes

JIRA 3.9 — 8 May 2007

- Ability to convert sub-tasks to issues (and vice versa)
- Convenient new scheduler for filter subscriptions
- Separate permissions for 'Delete Comment', 'Delete Attachment' and 'Delete Issue'
- Performance Improvements for Project Roles

- More in release notes

JIRA 3.8 — 13 March 2007

- Editable comments
- Self-installer for JIRA
- CAPTCHA for new account signup
- Integration with Crowd
- Improvements to the Bugzilla importer
- DHTML-loading of Issue screens
- More in release notes

JIRA 3.7 — 18 December 2006

- Project Roles - assign users and groups to roles on a per project basis
- Chart View - view charts in Issue Navigator using the JIRA Charting plugin
- RSS Improvements
- User Properties - record arbitrary information to the user profile (admin only)
- SVN project panel plugin - provides a summary of all commits made against a particular project or a project version
- More in release notes

JIRA 3.6 — 18 April 2006

- Custom Events - extension point for notification and workflow schemes
- Group Picker Custom Field - searchable in the issue navigator
- Per-issue Group Notifications and Permissions - based on the group picker custom field
- "I'm Feeling Lucky" Quick Search
- Collapsible Fields - control the level of detail of environment, description, individual comment fields and any textarea custom field
- Nestable Conditions - construct complex workflow conditions using nested conditions with AND or OR statements
- More in release notes

JIRA 3.5 — 01 February 2006

- Bulk Workflow Transition
- FogBugz Importer
- Charting Plugin
- MS Word Export
- JIRA Page Linker Plugin - linking a JIRA issue with a Confluence URL
- Component Lead Notification Type
- Bulk Assignment of Users to Groups
- More in release notes

JIRA 3.4 — 15 November 2005

- Issue Types Per Project
- Renderers - Confluence markup in JIRA text-based fields such as description and comments
- Issue Operation Plugin
- Announcement Banner
- RSS Support Improvements - live bookmarking with supported browsers
- Change Parent of Sub-Task
- Multi-user Custom Field
- More in release notes

JIRA 3.3 — 05 August 2005

- Multiple Project Filters - execute a search across multiple projects
- Bulk Move
- User Custom Field as Notification Target
- Extended Search Capabilities - search by date range for 'Created' and 'Updated' system fields and the custom field 'Date Time'
- JIRA Standalone ships with Tomcat 5.5
- More in release notes

JIRA 3.2 — 27 May 2005

- Field screens - configuration of field position and visibility for each issue operation and in Professional and Enterprise editions for each workflow transition screen
- Contextual custom fields - shared between projects and issue types
- Extended Bulk Edit Capabilities - Due Date, Reporter, Issue Security Level, Issue Type
- Improved internationalisation - Issue Constant Translations (Priorities, Statuses, Issue Types and Resolutions)
- Improved performace - quicker searching in the issue navigator and reports generation
- Smart Query
- Excel View
- More in release notes

JIRA 3.1 — 14 February 2005

- CSV Importer Wizard
- Add Comment on 'View Issue' field
- Webwork Plugin Type
- Assign Issues by Mail (via the CC field) using the Create Issue Handler
- More in release notes

JIRA 3.0 — 12 October 2004

- Workflow editor and configurable workflows
- Sub-tasks
- Plugin System
- Pluggable Custom Fields
- Dashboard Overhaul
- Issue cloning
- More in release notes

Beta Releases

A **Beta release** is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release.

> **Do not use in production**
> Beta releases should not be used in production environments as they are not officially supported.

> **Please also take note of the following information:**
>
> - **Beta releases are not safe** — Beta releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
>   - Features in development releases may be incomplete, or may change or be removed before the next full release.
> - **No upgrade path** — Because Beta releases represent work in progress, we **cannot** provide a supported upgrade path between Beta releases, or from any Beta to the eventual final release. Thus, any data you store in a JIRA Beta release may not be able to be migrated to a future JIRA release.

The following Beta releases are currently available for download. Your help with testing them is very appreciated! Please log the bugs you find on http://jira.atlassian.com in the "JIRA" project.

Beta Releases

- JIRA 4.3 RC1 Release Notes
- JIRA 4.3 Beta 1 Release Notes
- JIRA 4.2 RC1 Release Notes
- JIRA 4.2 Beta 3 Release Notes
- JIRA 4.2 Beta 2 Release Notes
- JIRA 4.2 Beta 1 Release Notes
- JIRA 4.0 RC1 Release Notes
- JIRA 4.0 Beta 5 Release Notes
- JIRA 4.0 Beta 4 Release Notes
- JIRA 4.0 Beta 3 Release Notes
- JIRA 4.0 Beta 2 Release Notes
- JIRA 4.0 Beta 1 Release Notes

JIRA 4.3 RC1 Release Notes

18 February 2011

JIRA 4.3 RC1 (a.k.a 4.3 milestone 7 or 'm7') is a public development release leading up to **JIRA 4.3**. A Release Candidate (RC) is a preliminary release leading up to the official release of a JIRA version. RC releases are a fairly stable snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use RC releases to test and fix their plugins in advance of an official release. For all production use and testing of JIRA, please use the latest official release.

The Atlassian team is proud to bring you the JIRA 4.3 RC1 release. As always, we would love to hear your feedback and comments about this release. To keep the discussion centralised, please provide your feedback as a comment on JRA-23131.

Identity management comes of age in JIRA 4.3, with complete LDAP integration. JIRA 4.3 also includes the Universal Plugin Manager for easier management of plugins, and a new data importer for easier migration from your old systems. Additionally, a raft of new JQL functions give you many powerful new searching options, such as the ability to search an issue's change history.

Dashboard Publish/Subscribe with Confluence (i.e. Gadgets 2.0) is also included, so if you are using Confluence as well as JIRA, your

Confluence gadgets will now appear in the JIRA Gadget Directory.

Note to developers: JIRA 4.3 RC1 includes Unified Application Links (UAL), Gadgets 2.0, and the Atlassian Plugin Framework version 2.6. Also please see the Plugin Developer Notes for JIRA 4.3, plus note that the REST API continues to evolve — please watch the Developer blog for the latest news on the REST API.

Highlights of JIRA 4.3 RC1:

- Full integration with LDAP and Active Directory
- Easy management of User Directories via JIRA Admin UI
- New Plugin Management System
- Application Links: Connecting Applications Together
- Add another application's Gadgets to your JIRA Gadget Directory
- Improved Importer ***(new since Beta 1)***
- Dashboard Performance Improvements
- JQL and Quick Search Enhancements
- Revamped User Avatars
- Improvements to Issue Links
- Remembered Assignees
- 'Whitelist' for External URLs ***(new since Beta 1)***
- Mail Server Configuration Improvements
- Security Enhancements
- JIRA now supports 'In-place Database Upgrades'
- Support Tools Plugin now bundled ***(new since Beta 1)***
- Support for Chrome and Safari 5 Browsers
- REST API Improvements
- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.3 RC1
Download RC

> **Upgrading to JIRA 4.3 RC1**
> JIRA RC releases are available here. When upgrading, please follow the JIRA 4.3 Upgrade Guide.

> **Do not use in production**
> RC releases should not be used in production environments as they are not officially supported.

> **Please also note:**
>
> - **RC releases may not be safe** — RC releases are snapshots of the ongoing JIRA development process. As such:
>   - While we deem these releases to be fairly stable, they have not undergone sufficient testing to be deemed an official (final) release.
>   - While feature development work is complete, some features may be subject to change or may be removed before the next full release.
> - **No upgrade path** — Because RC releases still represent work in progress, we **cannot** provide a supported upgrade path between RC releases, from EAP or Beta to RC releases, or from any RC to the eventual final release. Thus, any data you store in a JIRA RC release may not be able to be migrated to a future JIRA release.

Highlights of JIRA 4.3 RC1

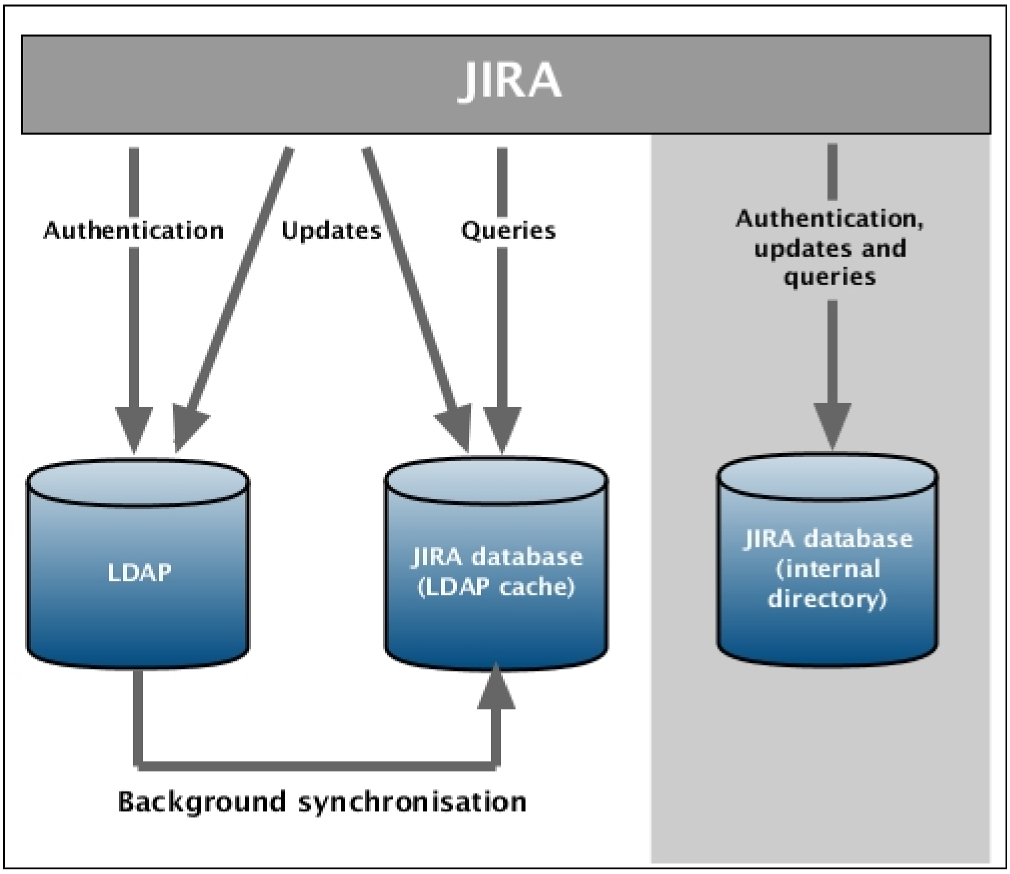
1

Full integration with LDAP and Active Directory

The way users and groups are stored and accessed in JIRA has been totally rewritten in Release 4.3, giving you the ability to connect to an LDAP server — including Microsoft Active Directory — for *all* user information. Your options include:

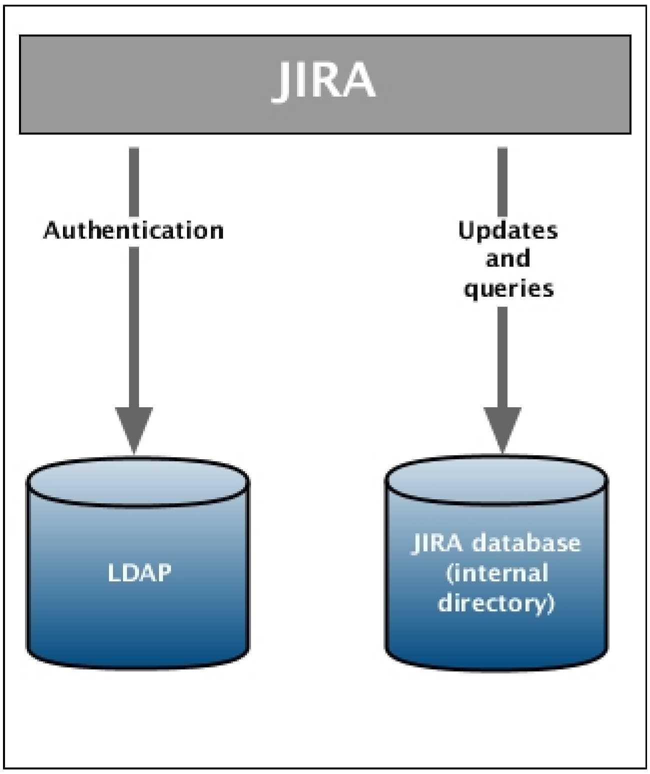
Integrate JIRA with LDAP/Active Directory

Update your user details in either JIRA *or* LDAP/Active Directory and they will automatically populate to the other repository:



Use LDAP for authentication only

This was the old way of integrating JIRA with LDAP, prior to JIRA 4.3. You can still do this, but much more easily (see below).



Connect to a Crowd server for user management

For larger and more complex installations, you may need to install Atlassian Crowd for user management and single sign-on. (See our guide to limitations and recommendations.) When integrating earlier versions of JIRA and Crowd, you had to manually edit a number of configuration files. JIRA 4.3 offers the following new features:

- Simple and quick setup via the JIRA and Crowd administration consoles.

- Clever synchronisation and caching to ensure the best response times.
- More...

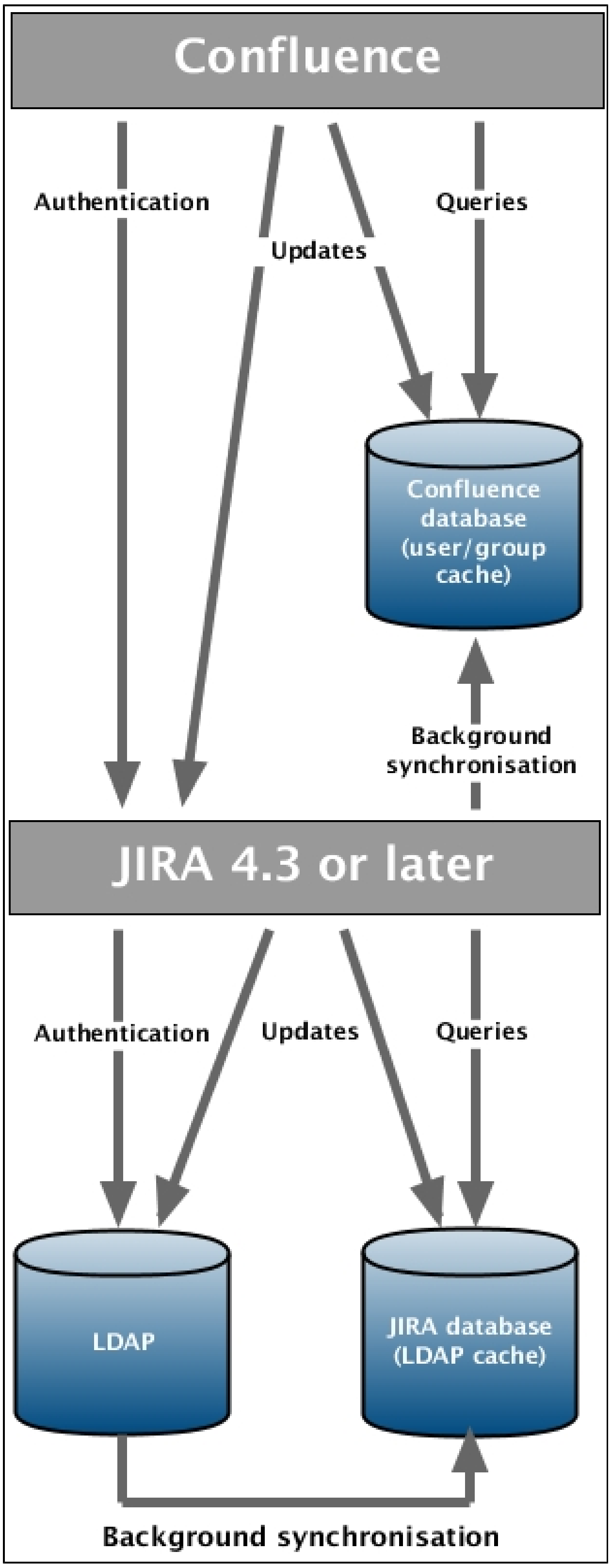
Use multiple LDAP and/or Crowd servers simultaneously

If you have multiple directories, you can now simply connect JIRA to all of them.

Connect Confluence to your JIRA User Directory

JIRA 4.3 can act as the directory manager for your Confluence site, interacting with one or more user directories and ensuring that you have the same set of users and groups across both applications.

Confluence 3.5 can connect directly to JIRA 4.3 via the administration UI. Clever synchronisation and caching ensure the best response times for your directory searches.



Earlier versions of Confluence can continue to use a direct JDBC connection to JIRA 4.2 and earlier.

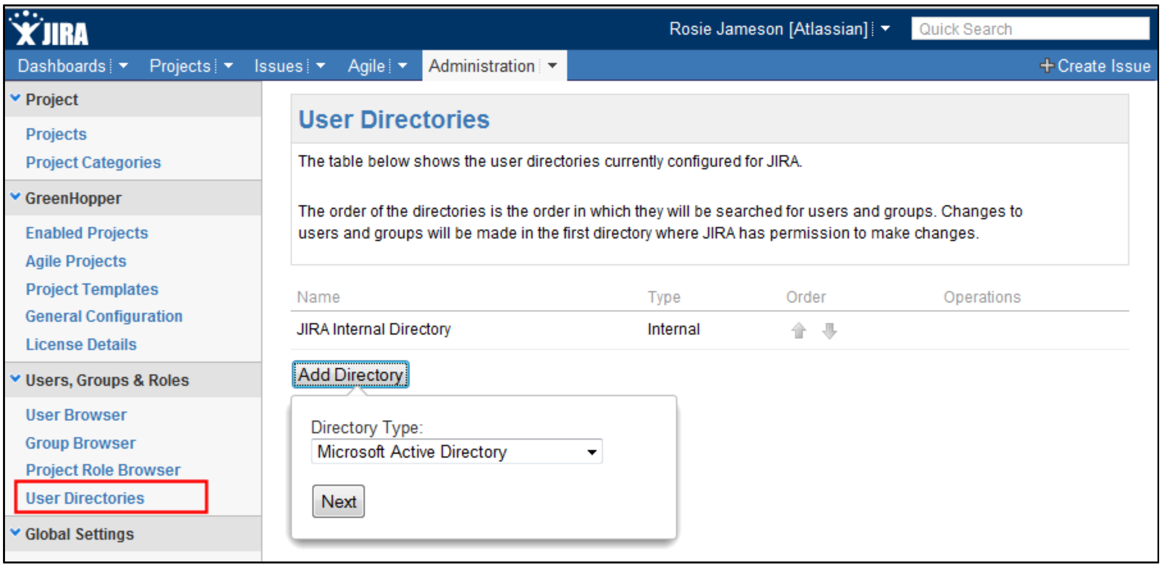
^Top

Easy management of User Directories via JIRA Admin UI

In JIRA 4.3, administrators can now manage external User Directories directly from the JIRA Administration screens. Gone are the days of manually editing XML files.

JIRA 4.3 brings a simple, powerful and flexible directory management interface:

- Choose from a list of supported directory types, including Microsoft Active Directory and ten other popular LDAP schemas.
- Configure all your LDAP settings via the JIRA Administration interface: permissions, server and schema settings. We pre-populate the fields with default values depending on your choice of directory type.
- Choose the LDAP permissions to suit your needs: read/write, read only, local groups or authentication only.
- Make use of the caching and copy-as-required configurations to optimise the performance of your LDAP searches.
- Add as many directory servers as you need. Connect directory servers of different types, including the JIRA internal directory (default), LDAP, Crowd and/or another JIRA server.
- Turn on support for nested groups.
- Configure your LDAP connection pool.

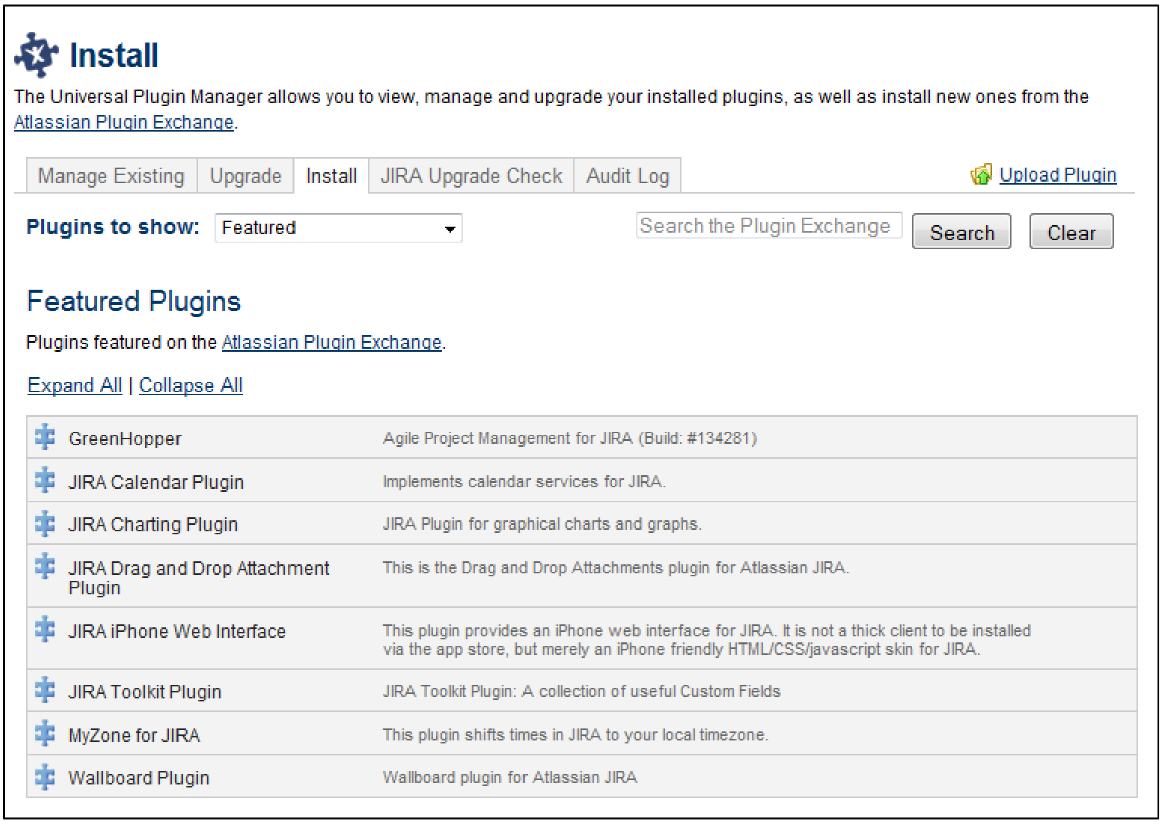


^Top

New Plugin Management System

JIRA 4.3 includes the Universal Plugin Manager (UPM), which provides you with a simple way of adding and managing plugins:

- Auto-discovery of available plugins (see **Featured Plugins** in the screenshot below)
- Point-and-click installation — you no longer need to download JAR files and shut down JIRA to install them.



^Top

4

Application Links: Connecting Applications Together

JIRA 4.3 includes Application Links, which makes it easy to connect your Atlassian applications together.

Application Links allows you to link your JIRA, Confluence, FishEye, Crucible, Bamboo and Subversion applications. You can even choose to associate individual entities (i.e. JIRA projects, Confluence spaces, FishEye repositories, FishEye projects, Crucible projects, Bamboo projects) with each other.

Applications Links is bundled with FishEye 2.4 and will be bundled with Confluence 3.5 and JIRA 4.3.

Linking two applications allows you to share information and access one application's functions from within the other. For example, if you linked a Confluence server to a JIRA server, you can create, find and insert JIRA issues directly onto a Confluence page or blog post using the new 'Insert JIRA Issue' option in Confluence 3.5.

You also can associate entities of two linked applications. For example, you could associate a JIRA project with a Confluence space. This allows you to take advantage of additional integration features like link rendering, which lets you create links to issues or pages in the project or space using a simple textual reference, e.g. `[JRA-1234], [myConfluenceSpace:Test Page]`.

- In JIRA 4.3 there is now a '**Configure Application Links**' option on the '**Project**' management screen, enabling you to easily configure application links for a given project.

For more about configuring Application Links, please see the Application Links Administrator's Guide.

^Top

5

Add another application's Gadgets to your JIRA Gadget Directory

JIRA 4.3 includes Atlassian Gadgets 2.0, allowing you to quickly add all gadgets from your Confluence, Bamboo, FishEye or Crucible instance — or from another JIRA instance — to your JIRA Gadget Directory, for easy addition to your JIRA dashboard:

In the JIRA Gadget Directory , you can now click 'Gadget Subscriptions'. There you can provide the URL for the other application (or other JIRA instance), and all the gadgets from that instance will be added to your JIRA Gadget Directory.

^Top

6

Improved Importer (new since Beta 1)

JIRA 4.3 provides a greatly improved Importer for Bugzilla, Mantis, FogBugz and CSV files, by bundling the JIRA Importers Plugin.

The web-based import wizard makes it easy to map fields — and individual field values — from your old bug-tracker to your new JIRA system:

External field	Value from importer	Target value in JIRA
bug_status	ASSIGNED:	Open
	NEW:	Open
	QA:	Reopened
	RESOLVED:	Resolved
	TESTING:	Reopened
bug_severity	blocker:	Blocker
	critical:	Critical
	enhancement:	Major
	minor:	Minor
	normal:	Major
	trivial:	Trivial
resolution	DUPLICATE:	Map as is

^Top

7

Dashboard Performance Improvements

We are extremely pleased to announce that you should see a noticeable reduction in the time it takes to load a Dashboard.

- On average, dashboard performance has improved by 29%
- For large dashboards, the performance improvement is 35%

We are also extremely pleased to announce that you should see a noticeable reduction in the time it takes to load the Gadget Directory (depending on how many external gadgets you have configured).

^Top

JQL and Quick Search Enhancements

JIRA 4.3 incorporates several JQL and Quick Search enhancements. You can now:

Search the Change History with JQL 'WAS' Operator

JIRA 4.3 introduces the ability to search the Change History of issues. There is much more functionality to follow, but in this release you can search for changes to the Status field.

For example, the following will return all issues that currently have, or previously had, a status of 'In Progress':

```
status WAS "In Progress"
```

The `WAS` operator can be used with the `NOT`, `IN` and `NOT IN` operators, e.g. to find issues that have never had a status of 'In Progress' or 'Resolved':

```
status WAS NOT IN ("In Progress","Resolved")
```

Search for relative dates and versions with JQL 'startOfDay', 'endOfDay', 'earliestUnreleasedVersion', 'latestReleasedVersion' *(new since Beta 1)*

JIRA 4.3 introduces the ability to search for issues relative to the current day, month, week or year. For example, to find issues that have been created today:

```
created > startOfDay()
```

Or to find issues that are due by the end of this month:

```
due < endOfMonth()
```

You can also perform searches based on the earliest unreleased version (i.e. the next version that is due to be released) of a specified project:

```
earliestUnreleasedVersion(project)
```

Or on the most recently released version of a specified project:

```
latestReleasedVersion(project)
```

Use a wild card when searching the 'Fix Version' field with Quick Search

When using Quick Search, you can now use the wildcard symbol: "`*`" to find issues that matches a core part of a Fix Version. For example, "`ff:3.2*`" will match any issue whose Fix For Version is:

- 3.2
- 3.2-beta
- 3.2.1
- 3.2.x

Use the `r:` prefix with Quick Search to find issues reported by a specific user

With Quick Search, you can find issues reported by you, another user or with no reporter, using the prefix "`r:`" followed by a specific reporter term such as "`me`", a username or "`none`", such that:

- "`r:me`" — finds issues reported by you.
- "`r:samuel`" — finds issues reported by the user whose username is "samuel".
- "`r:none`" — finds issues with no reporter.

^Top

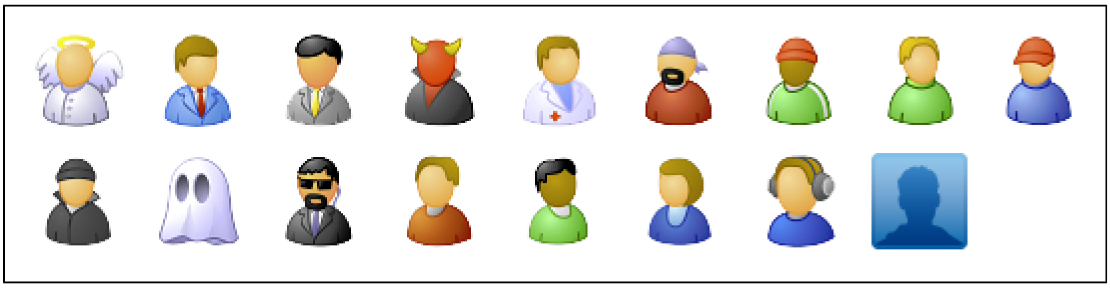
9

Revamped User Avatars

JIRA 4.3 introduces the new-look Atlassian avatars:

- User avatars are displayed as the icon for your profile, and to illustrate your comments on an issue. See the documentation on Adding a User Avatar.

We were fond of the old avatars, but think you'll agree they were looking a little dated by comparison:



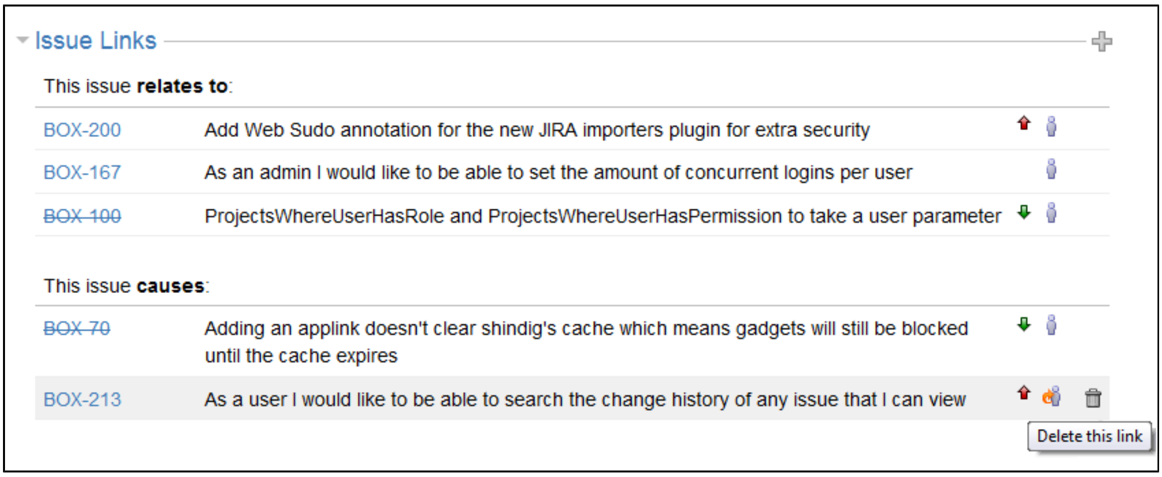
^Top

10

Improvements to Issue Links

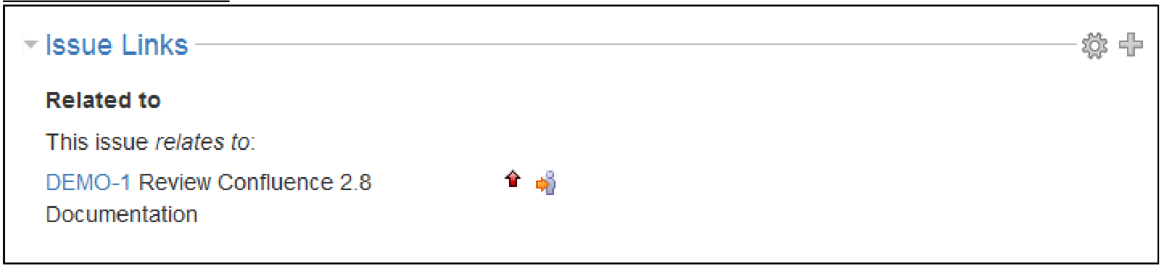
The 'Linked Issues' section of the 'View Issue' screen has been streamlined to make it both more compact and quicker to use. You can now delete links directly from this screen upon mouse hover:

JIRA 4.3: *a linked issue*



Previously, to delete a link you needed to click the 'cog' icon (which took you to a separate screen):

JIRA 4.2: *a linked issue*

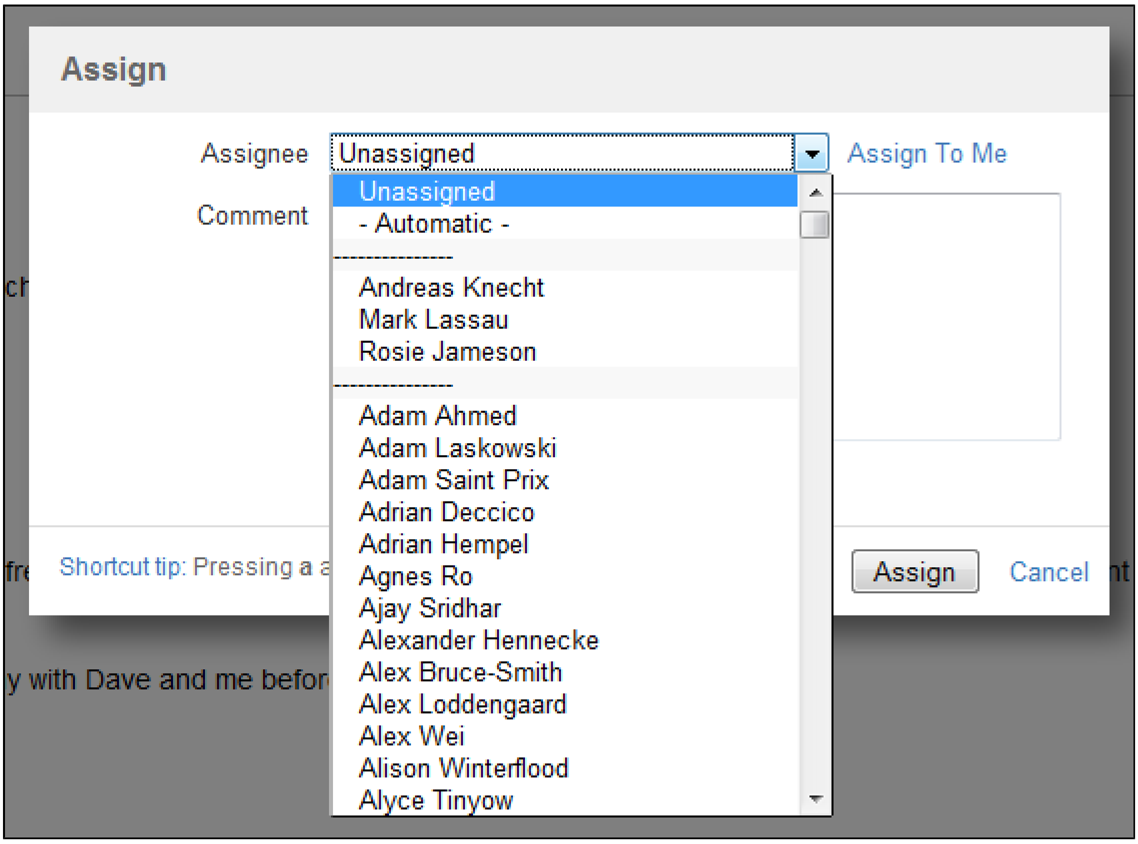


^Top

11

Remembered Assignees

JIRA now makes it easier to assign users to issues. The top of the assignee dropdown list shows the last five people you assigned issues to, as well as the reporter of the issue and all participants involved in the issue.

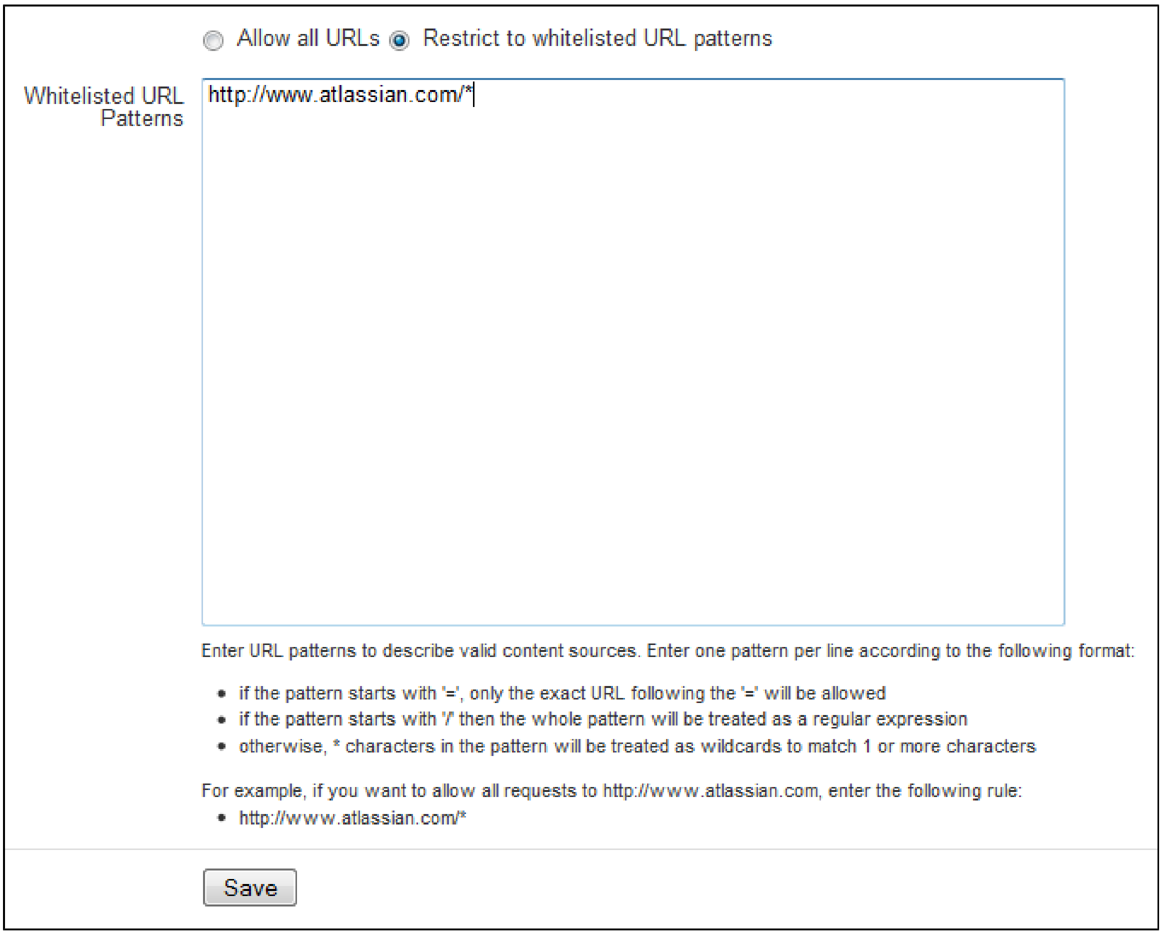


^Top

'Whitelist' for External URLs (new since Beta 1)

For security reasons, an administrator may wish to limit the URLs from which users can source content that is displayed on their JIRA site (e.g. via an External Gadget).

JIRA 4.3 allows you to create a 'Whitelist' of URLs — or URL patterns — whose content you wish to make available to users of your JIRA site:

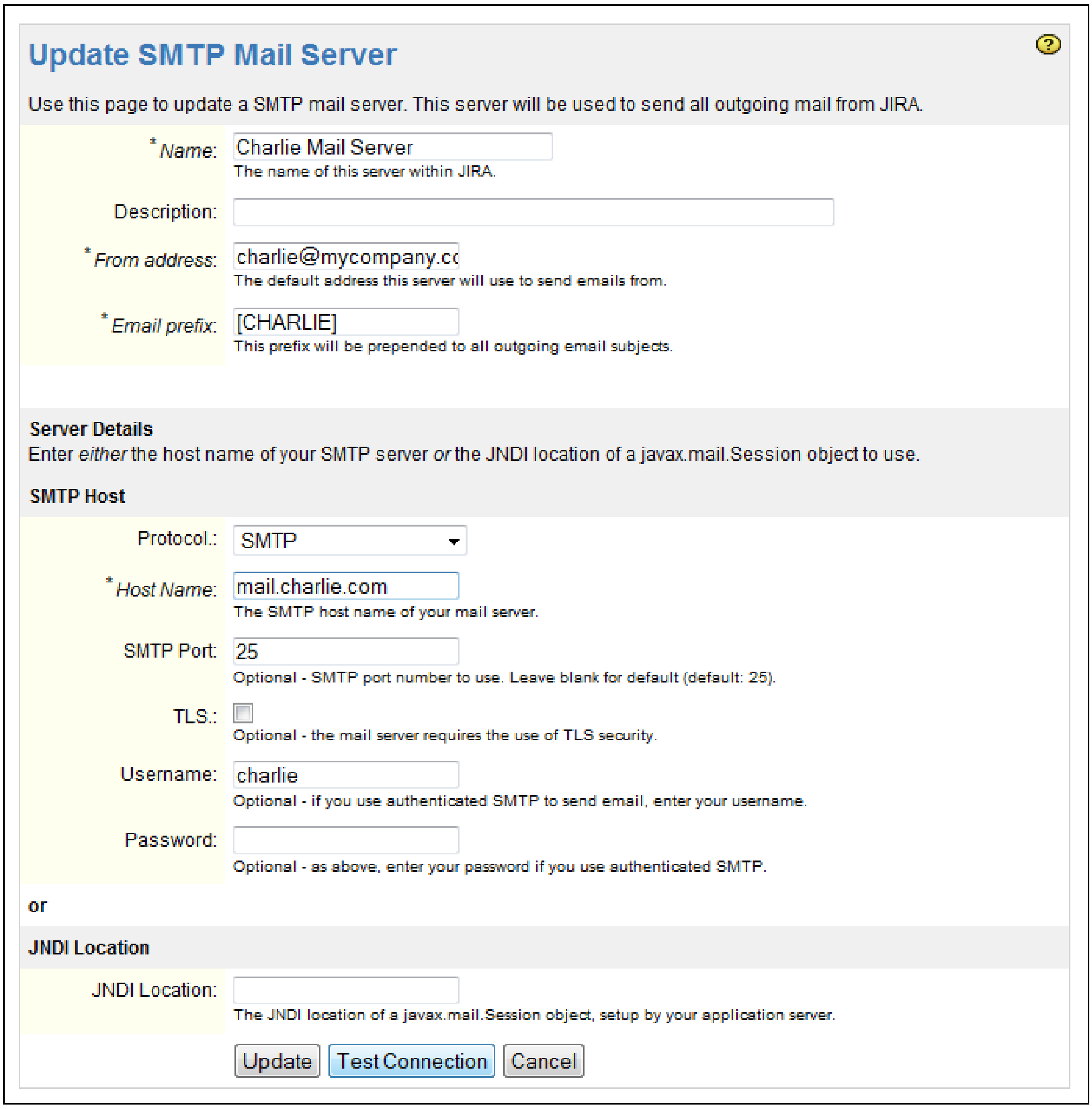


See the documentation for more details.

^Top

Mail Server Configuration Improvements

In JIRA 4.3, administrators can now test their mail server configuration with the "Test Connection" button.



A '**Timeout**' field has also been added.

^Top

Security Enhancements

For enhanced security:

User Email Change is now Password Protected

Users will now be prompted to enter their password when changing their email address.

JIRA provides Secure Administration Sessions *(new since Beta 1)*

Access to JIRA's administration features and functions is now password-protected.

See the documentation for more details.

^Top

15

JIRA now supports 'In-place Database Upgrades'

JIRA 4.3 now officially supports 'in-place database upgrades', when upgrading from JIRA 4.0.0 or later.

This method requires much less downtime during the JIRA upgrade process, especially if you operate a large JIRA installation. You no longer need to export your existing JIRA data to an XML backup and then restore this data into your new JIRA version. Instead, we now support simply 'pointing' your new version of JIRA at your existing JIRA database!

See the documentation for more details.

^Top

16

Support Tools Plugin now bundled (new since Beta 1)

We are very pleased to announce that the Atlassian Support Tools Plugin is now bundled with JIRA. The Atlassian Support Tools Plugin proves tools to help you troubleshoot issues with Atlassian products and get help from Atlassian Support.

See the documentation for more details.

^Top

17

Support for Chrome and Safari 5 Browsers

We are very pleased to announce that Chrome and Safari 5 are supported for use with JIRA 4.3.

^Top

18

REST API Improvements

We have improved discoverability of issues and projects through the REST API: there is now a `search` resource, which can be used to search for issues using JIRA Query Language (JQL). It is also possible to obtain a list of projects in a JIRA instance. Have a look at the reference documentation to see if the REST API offers the features that you want (let us know if not).

Clients that log in through the REST API can now determine when the login has been denied due to a CAPTCHA requirement: the HTTP header `X-Authentication-Denied-Reason` has all the necessary information.

^Top

Other Enhancements and Fixes

For the list of issues resolved in JIRA 4.3 so far, click here.

^Top

JIRA 4.3 Beta 1 Release Notes

1 February 2011

JIRA 4.3 Beta 1 (a.k.a 4.3 milestone 6 or 'm6') is a public development release leading up to **JIRA 4.3**. A Beta release is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release. For all production use and testing of JIRA, please use the latest official release.

The Atlassian team is proud to bring you the JIRA 4.3 Beta 1 release. Thank you for your feedback during the recent EAP releases, and please keep providing it here.

Identity management comes of age in JIRA 4.3, with complete LDAP integration. Additionally, you now have the ability to search an issue's change history. JIRA 4.3 also includes the Universal Plugin Manager for easier management of plugins.

Dashboard Publish/Subscribe with Confluence (i.e. Gadgets 2.0) is also included, so if you are using Confluence as well as JIRA, your Confluence gadgets will now appear in the JIRA Gadget Directory (and vice versa).

Note to developers: JIRA 4.3 Beta 1 includes Unified Application Links (UAL), Gadgets 2.0, and the Atlassian Plugin Framework version 2.6 . Also please see the Plugin Developer Notes for JIRA 4.3, plus note that the REST API will continue to evolve through the 4.3 Beta releases — please watch the Developer blog for the latest news on the REST API.

Highlights of JIRA 4.3 Beta 1:

- Full LDAP integration
- User Directory management via JIRA Admin UI
- New Plugin Management System
- AppLinks pre-installed and configurable from the JIRA Admin UI
- Add another application's Gadgets to your JIRA Gadget Directory
- Dashboard Performance Improvements *(enhanced since EAP 5)*
- Search the Change History with JQL 'WAS' Function *(improved since EAP 5)*
- Revamped User Avatars
- Enhancements to Quick Search
- Improvements to Issue Links *(new since EAP 5)*
- Remembered Assignees
- Mail Server Configuration Improvements
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- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.3 Beta 1
Download Beta

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Do not use in production
Beta releases should not be used in production environments as they are not officially supported.

Please also take note of the following information:

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Highlights of JIRA 4.3 Beta 1

1

Full LDAP integration

The way users and groups are stored and accessed in JIRA has been totally rewritten in Release 4.3. This provides a number of additional capabilities, mainly the ability to use an LDAP server for all user information. Key features are:

- Ability to connect to an LDAP server, including to Microsoft Active Directory, for user management. This includes:
  - Read-write access
  - Read-only access
  - Read-only access with local groups
  - Use LDAP for authentication only — *Previous functionality*
- Ability to connect to a Crowd server for user management — *Previous functionality*
- Ability to manage users fully within JIRA — *Previous functionality*
- Ability to use 2 or more LDAP and/ or Crowd servers simultaneously for user management.

Note when upgrading from EAP 3

If you are upgrading to Beta 1 from EAP 3, please note that there have been changes to Crowd that require extra data in the cwd_application table.

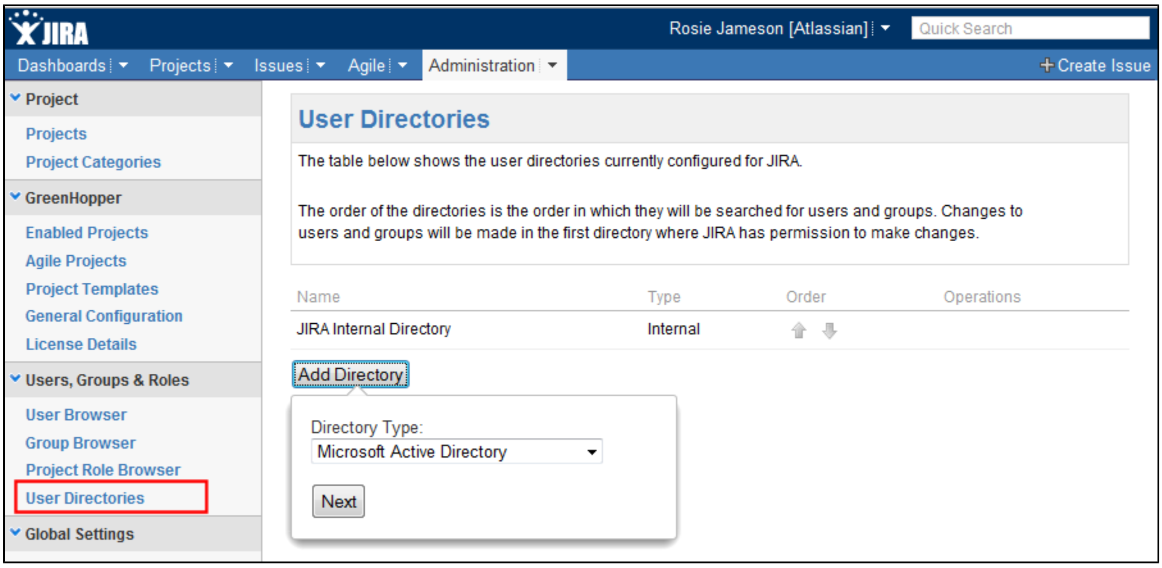
You will need to update the table and add 'CROWD' into the application_type column.

(This will not be necessary when upgrading to the final release of JIRA 4.3.)

^Top

User Directory management via JIRA Admin UI

In JIRA 4.3, administrators can now manage external User Directories directly from the JIRA Administration screens. Gone are the days of manually editing XML files.

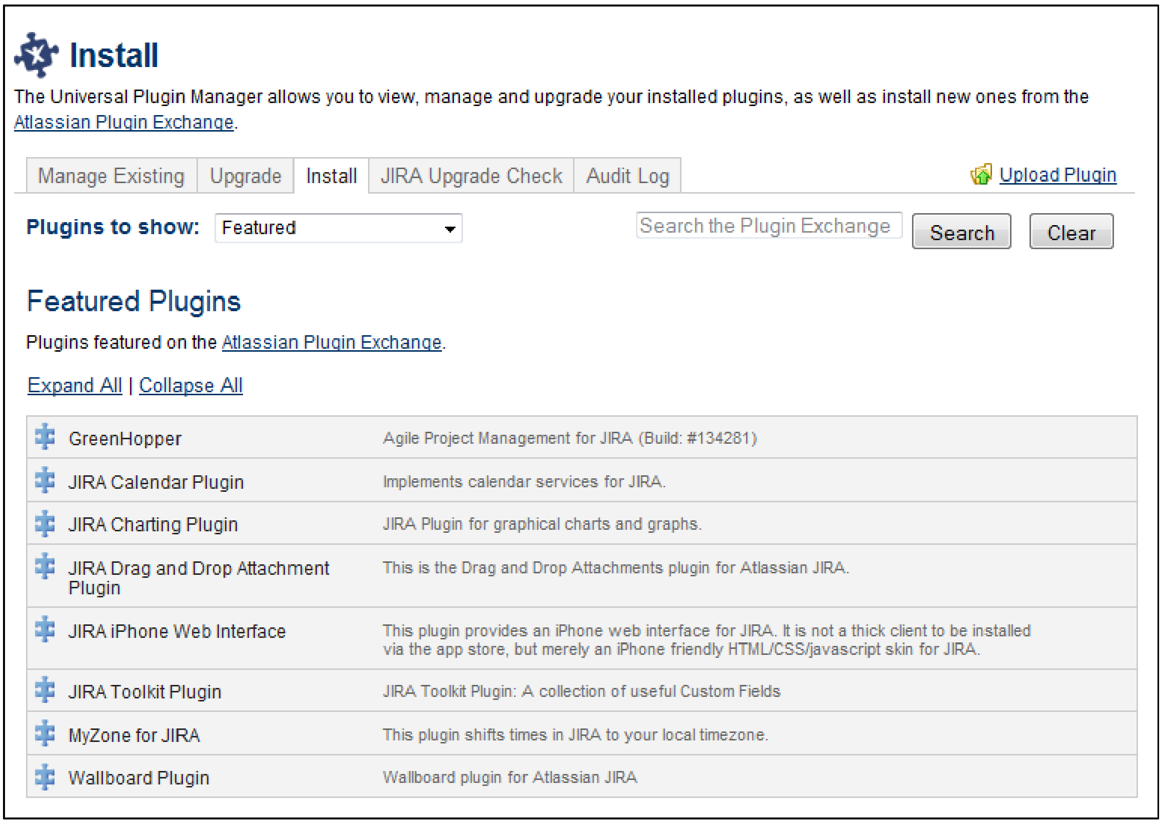


^Top

New Plugin Management System

JIRA 4.3 includes the Universal Plugin Manager (UPM), which provides you with a simple way of adding and managing plugins:

- Auto-discovery of available plugins (see **Featured Plugins** in the screenshot below)
- Point-and-click installation — no more downloading JAR files



^Top

AppLinks pre-installed and configurable from the JIRA Admin UI

JIRA 4.3 includes Unified Application Links (UAL), so you no longer need to install it separately.

Application Links (AppLinks) is a plugin that allows you to link your JIRA, Confluence, FishEye, Crucible, Bamboo and Subversion applications. You can even choose to associate individual entities (i.e. JIRA projects, Confluence spaces, FishEye repositories, FishEye projects, Crucible projects, Bamboo projects) with each other.

Applications Links is bundled with FishEye 2.4 and will be bundled with Confluence 3.5 and JIRA 4.3.

Linking two applications allows you to share information and access one application's functions from within the other. For example, if you linked a JIRA server and a Confluence server, you could view JIRA issues in a Confluence page via the JIRA Issues Macro.

You also can associate entities of two linked applications. For example, you could associate a JIRA project with a Confluence space. This allows you to take advantage of additional integration features like link rendering, which lets you create links to issues or pages in the project or space using a simple textual reference, e.g. `[JRA-1234], [myConfluenceSpace:Test Page]`.

- In JIRA 4.3 there is now a '**Managed Unified Application Links**' option on the '**Manage Project**' screen, enabling you to easily configure application links for a given project.

For more about configuring Application Links, please see the Application Links Administrator's Guide.

^Top

Add another application's Gadgets to your JIRA Gadget Directory

JIRA 4.3 includes Atlassian Gadgets 2.0, allowing you to quickly add all gadgets from your Confluence, Bamboo, FishEye or Crucible instance — or from another JIRA instance — to your JIRA Gadget Directory, for easy addition to your JIRA dashboard:

In the JIRA Gadget Directory , you can now click 'Gadget Subscriptions'. There you can provide the URL for the other application (or other JIRA instance), and all the gadgets from that instance will be added to your JIRA Gadget Directory.

^Top

6

Dashboard Performance Improvements (enhanced since EAP 5)

We are extremely pleased to announce that you should see a noticeable reduction in the time it takes to load a Dashboard.

- On average, dashboard performance has improved by 29%
- For large dashboards, the performance improvement is 35%

In Beta 1 we are also extremely pleased to announce that you should see a noticeable reduction in the time it takes to load the Gadget Directory (depending on how many external gadgets you have configured).

^Top

7

Search the Change History with JQL 'WAS' Function (improved since EAP 5)

JIRA 4.3 introduces the ability to search the Change History of issues. There is much more functionality to follow, but in this release you can search for changes to the Status field.

For example, the following will return all issues that currently have, or previously had, a status of 'In Progress':

```
status WAS "In Progress"
```

In Beta 1, support for the `NOT`, `IN` and `NOT IN` operators has been added.

E.g. to find issues that have never had a status of 'In Progress':

```
status WAS NOT "In Progress"
```

To find issues that currently have, or previously had, a status of 'In Progress' or 'Resolved':

```
status WAS IN "In Progress,Resolved"
```

^Top

8

Revamped User Avatars

JIRA 4.3 introduces the new-look Atlassian avatars:

- User avatars are displayed as the icon for your profile, and to illustrate your comments on an issue. See the documentation on Adding a User Avatar.

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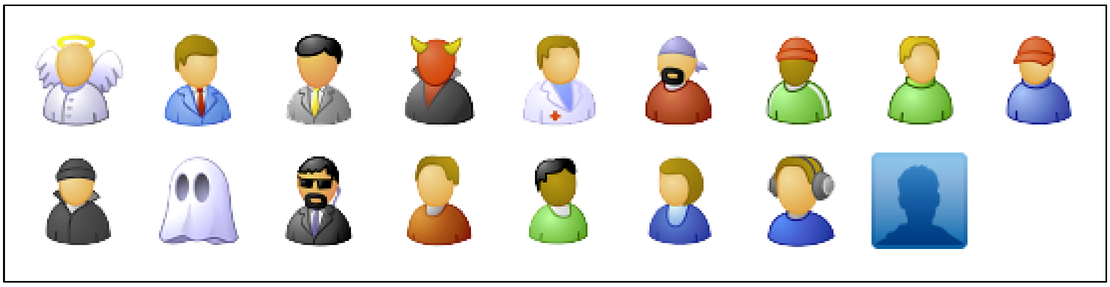


^Top

9

Enhancements to Quick Search

When using Quick Search to find issues with a particular version, you can now use the wildcard symbol: "`*`". For example, "`ff:3.2*`" will match any issue whose Fix For Version is:

- 3.2
- 3.2-beta
- 3.2.1
- 3.2.x

You can also find issues reported by you, another user or with no reporter, using the prefix "`r:`" followed by a specific reporter term such as "`me`", a username or "`none`", such that:

- "`r:me`" — finds issues reported by you.
- "`r:samuel`" — finds issues reported by the user whose username is "samuel".
- "`r:none`" — finds issues with no reporter.

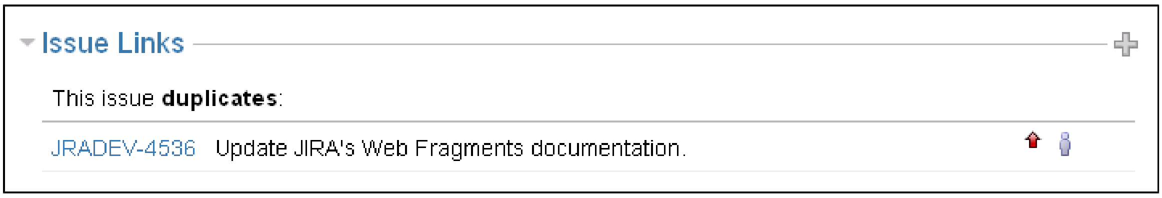
^Top

10

Improvements to Issue Links (new since EAP 5)

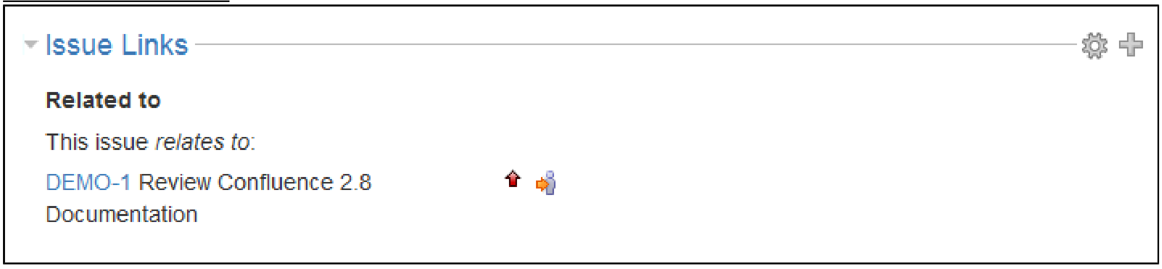
The 'Linked Issues' section of the 'View Issue' screen has been streamlined to make it both more compact and quicker to use. You can now delete links directly from this screen:

***JIRA 4.3:** a linked issue*



Previously, to delete a link you needed to click the 'cog' icon (which took you to a separate screen):

JIRA 4.2: *a linked issue*



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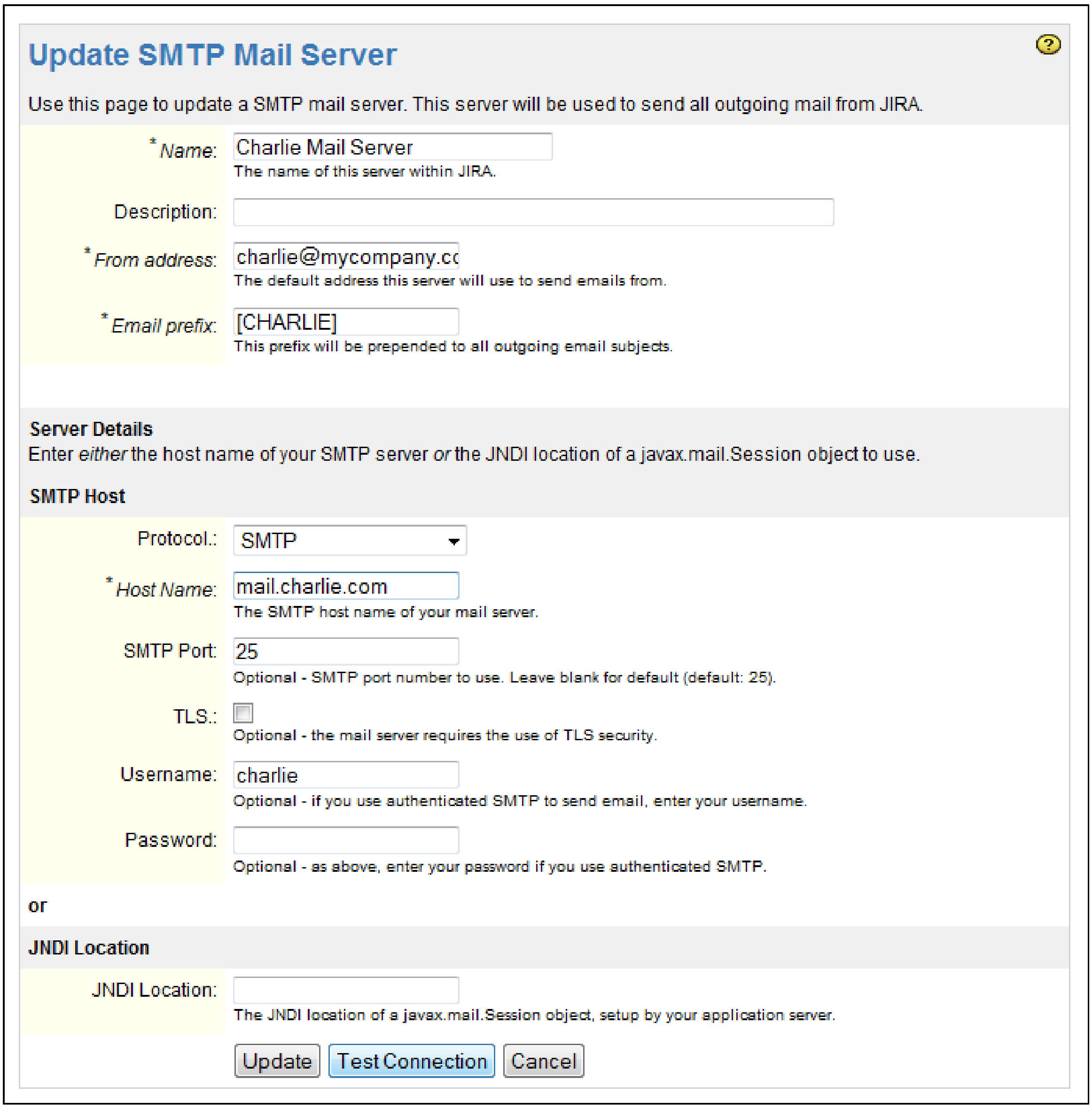
Remembered Assignees

JIRA now makes it easier to assign users to issues. The top of the assignee dropdown list shows the last five people you assigned issues to, as well as the reporter of the issue and all participants involved in the issue.

^Top

Mail Server Configuration Improvements

In JIRA 4.3, administrators can now test their mail server configuration with the "Test Connection" button.



A '**Timeout**' field has also been added.

^Top

13

User Email Change is now Password Protected

For enhanced security, users will now be prompted to enter their password when changing their email address.

^Top

14

Support for Chrome and Safari 5 Browsers

We are very pleased to announce that Chrome and Safari 5 are supported for use with JIRA 4.3.

^Top

15

REST API improvements

We have improved discoverability of issues and projects through the REST API: there is now a `search` resource, which can be used to search for issues using JIRA Query Language (JQL). It is also possible to obtain a list of projects in a JIRA instance. Have a look at the reference documentation to see if the REST API offers the features that you want (let us know if not).

Clients that log in through the REST API can now determine when the login has been denied due to a CAPTCHA requirement: the HTTP header `X-Authentication-Denied-Reason` has all the necessary information.

^Top

Other Enhancements and Fixes

For the list of issues resolved in JIRA 4.3 so far, click here.

^Top

JIRA 4.2 RC1 Release Notes

12 October 2010

JIRA 4.2 RC1 is a public development release leading up to **JIRA 4.2**. For all production use and testing of JIRA, please use the latest official release.

A **Release Candidate (RC)** is a preliminary release leading up to the official release of a JIRA version. RC releases are a fairly stable snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use RC releases to test and fix their plugins in advance of an official release.

Do not use in production
RC releases should not be used in production environments as they are not officially supported.

Please also take note of the following information:

- **RC releases may not be safe** — RC releases are snapshots of the ongoing JIRA development process. As such:
  - While we deem these releases to be fairly stable, they have not undergone sufficient testing to be deemed an official (final) release.
  - While feature development work is complete, some features may be subject to change or be removed before the next full release.
- **No upgrade path** — Because RC releases still represent work in progress, we **cannot** provide a supported upgrade path between RC releases, from Beta to RC releases, or from any RC to the eventual final release. Thus, any data you store in a JIRA RC release may not be able to be migrated to a future JIRA release.

The Atlassian team is proud to bring you the JIRA 4.2 RC1 release. As always, we would love to hear your feedback and comments about this release. To keep the discussion centralised, please provide your feedback as a comment on JRA-22093.

JIRA 4.2 gives you a few extra minutes of precious time every day, by providing the ability to triage issues directly from the Issue Navigator without you having to open each issue. For the mouse-averse, the new 'Operations Dialog' box provides access to all menu options via the keyboard.

To help speed up your ability to work on issues, we've also made common actions and workflow operations accessible from convenient dialog boxes.

Time-tracking has become much more flexible: you can now edit the Original Estimate and set the Remaining Estimate to zero when resolving an issue. You can also log work via workflow 'transition' (or any other) screens — now accessible via speedy dialog boxes.

The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users and administrators — and everyone else who likes to label their JIRA issues.

GreenHopper 5.3 RC1 is also available for download, and is compatible with JIRA 4.2 RC1. A feature highlight coming up in GreenHopper 5.3 are GreenHopper-specific keyboard shortcuts.

JIRA 4.2 RC1 differs from the Beta 3 release in the following respects:

- We've fixed 209 bugs, including 56 relating to Internet Explorer and 10 relating to the REST API
- Improved flow and navigation through issue actions — users are more likely to land on the page from which they performed an action.

- More performance improvements have been incorporated into the auto-complete feature for multi-select fields (such as the Component and Versions fields) and the JQL auto-complete feature.

Note to developers: JIRA 4.2 includes the Atlassian Plugin Framework version 2.5, and an alpha release of the JIRA REST API. We are very keen to hear your feedback on the REST API — please try it out and add your comments to JRA-22139.

Supported Platforms: Please note from our announcements in late 2009/early 2010 that JIRA 4.2 will not support Oracle WebLogic, IBM WebSphere, Java Platform 5 and Internet Explorer 6.

Highlights of JIRA 4.2:

- Dialogs for Common Actions and Workflow Operations
- Keyboard Shortcuts and 'Operations Dialog'
- Issue Labelling
- Improvements to the 'View Issue' Screen
- Auto-complete for Versions and Components
- Attachment Sorting by Date or Name
- Viewable Files in Zipped Attachments
- 'Log Work' Improvements
- Improvements to the Issue Navigator
- 'Filter' Gadget creation via the Issue Navigator
- User Avatars and Hover Profile
- New JQL Functions
- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.2 RC1
Download RC1

> **Upgrading to JIRA 4.2 RC1**
> Development releases of JIRA are available here. Before upgrading, please refer to the JIRA 4.2 Upgrade Guide.

Highlights of JIRA 4.2

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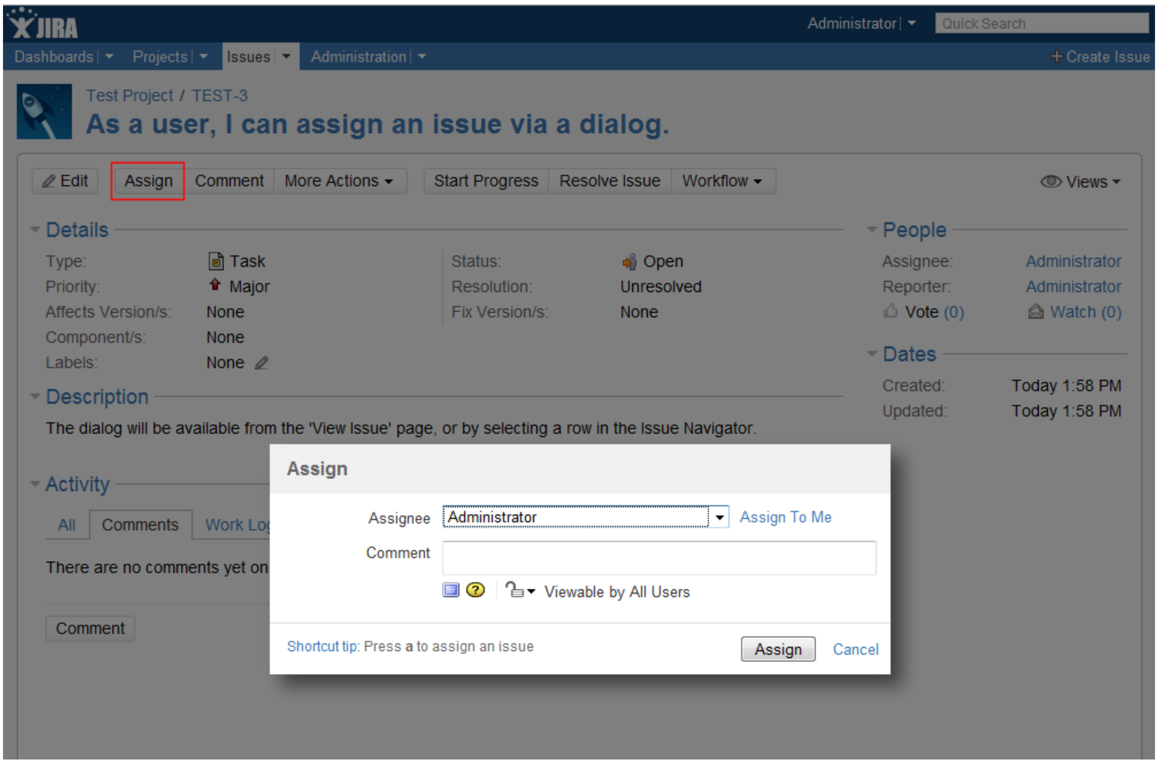

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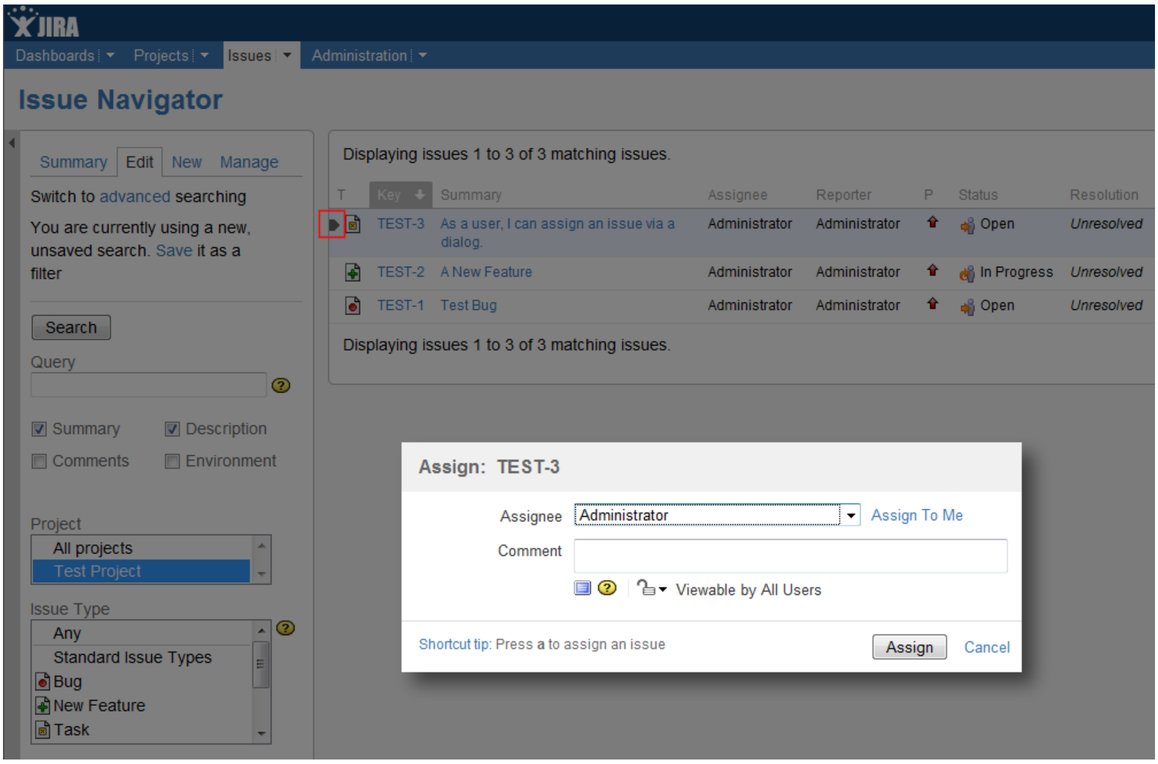

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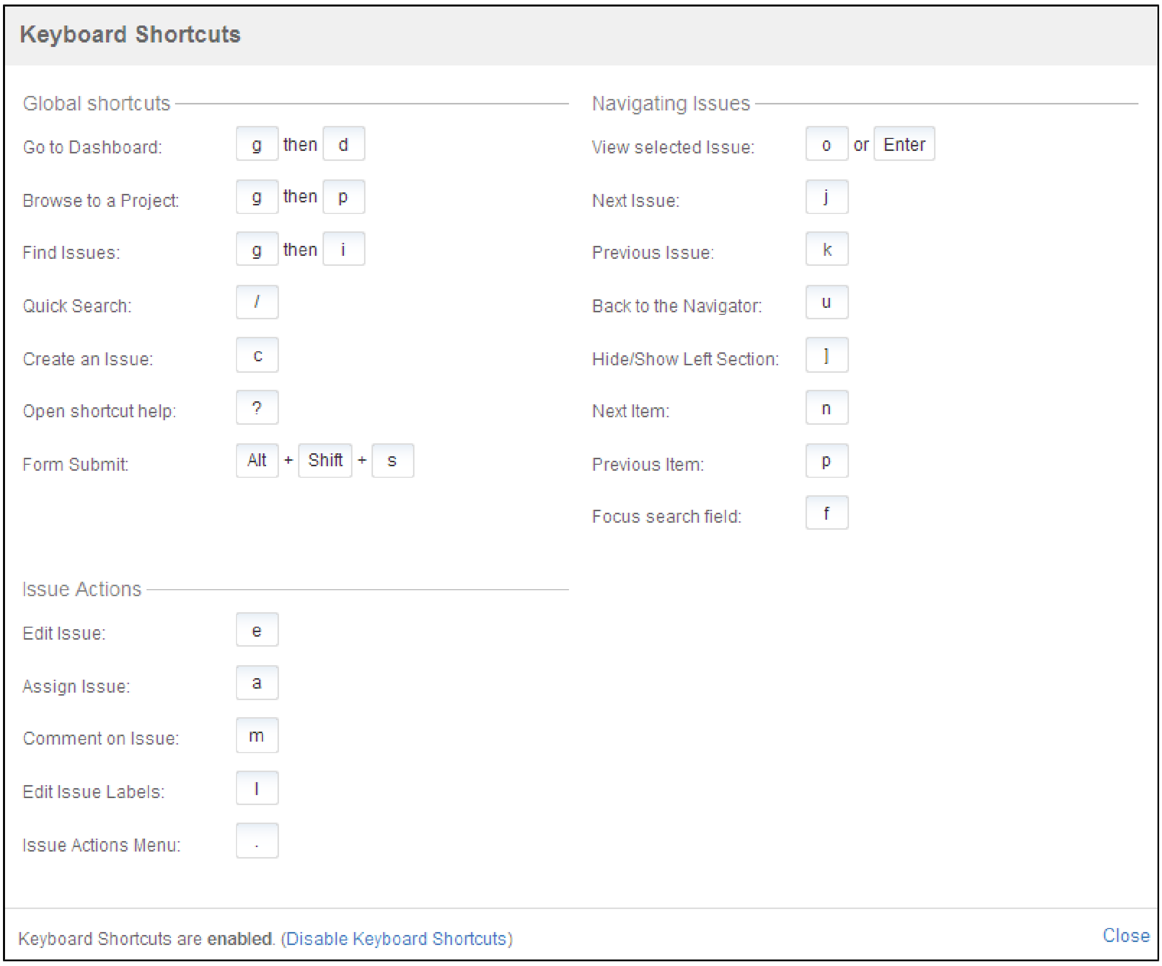

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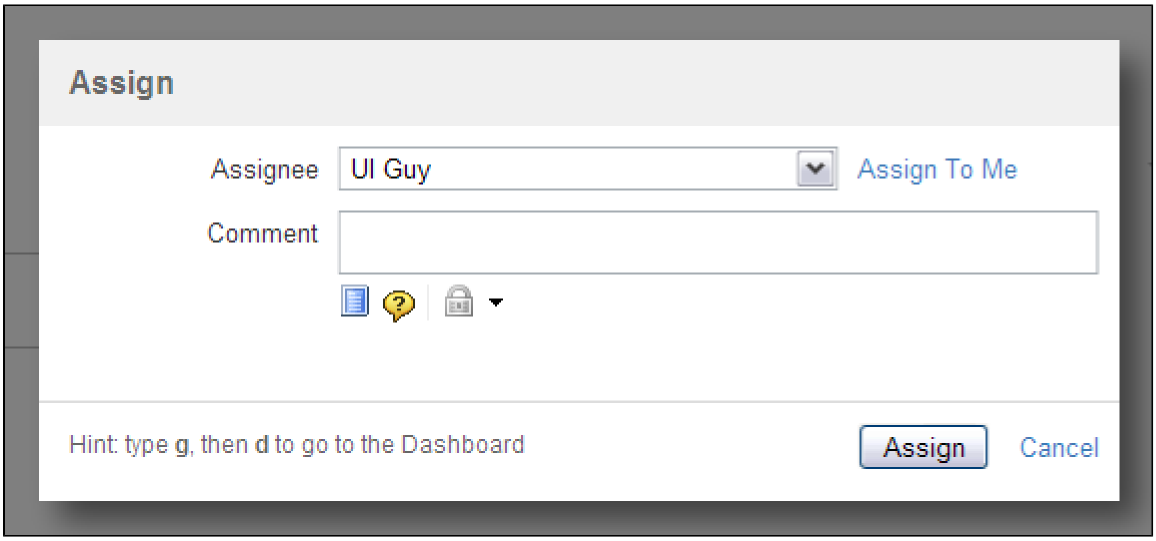

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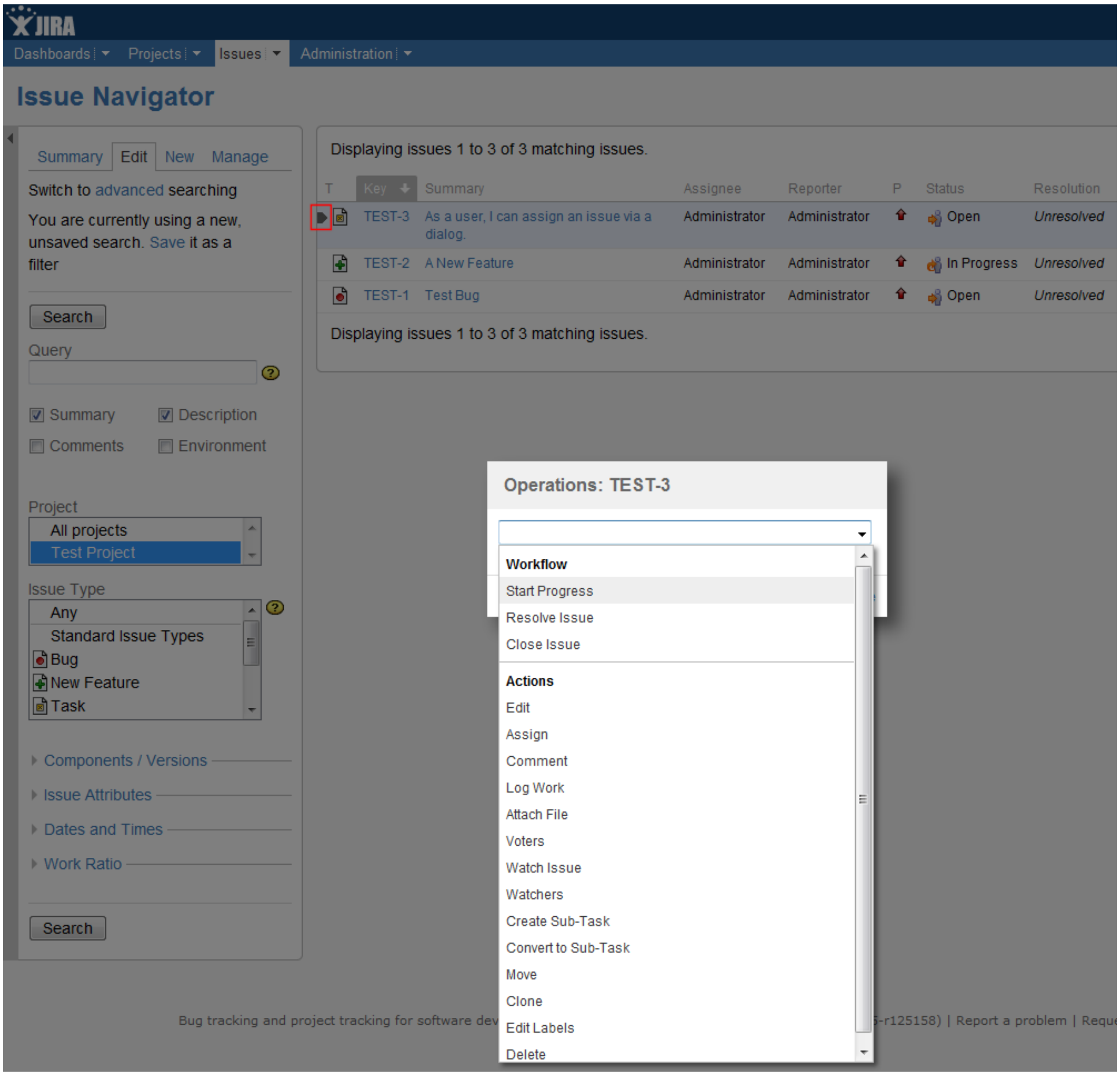

See Using Keyboard Shortcuts for more information.

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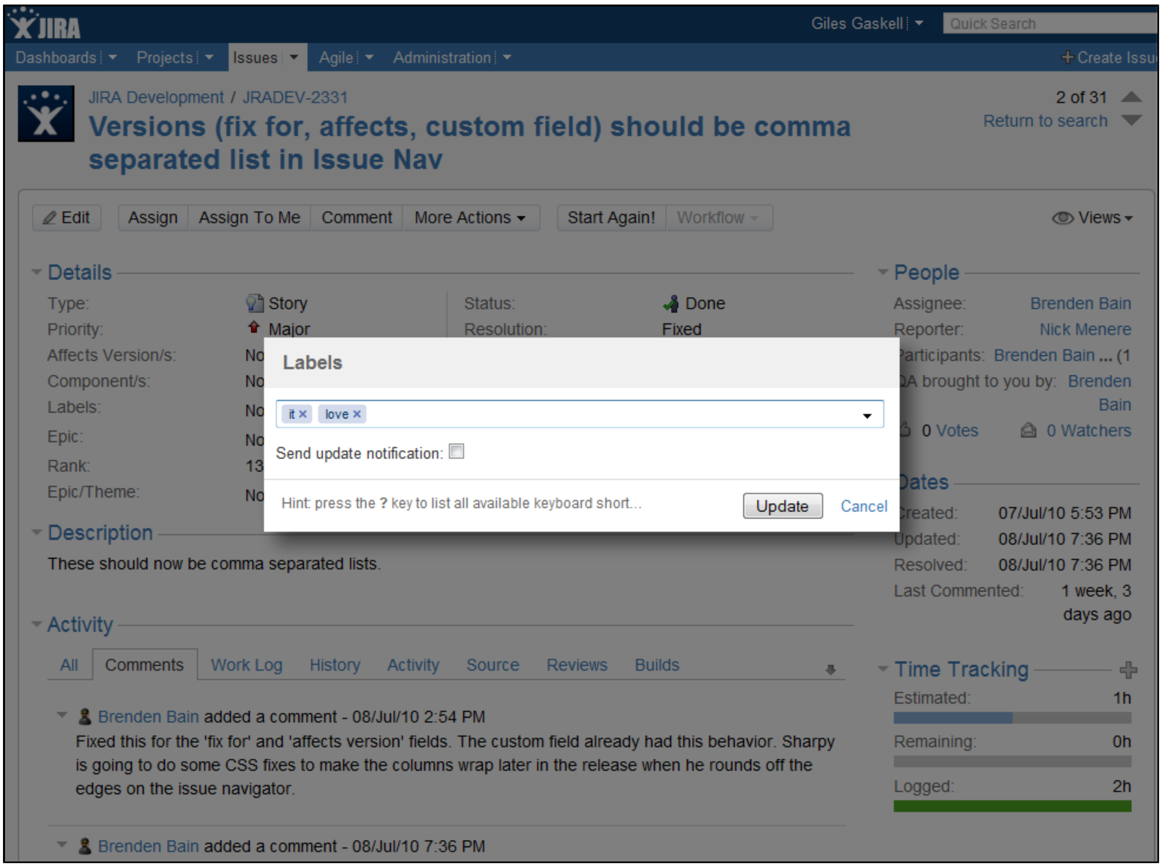

See Labelling an Issue for more information.

^Top

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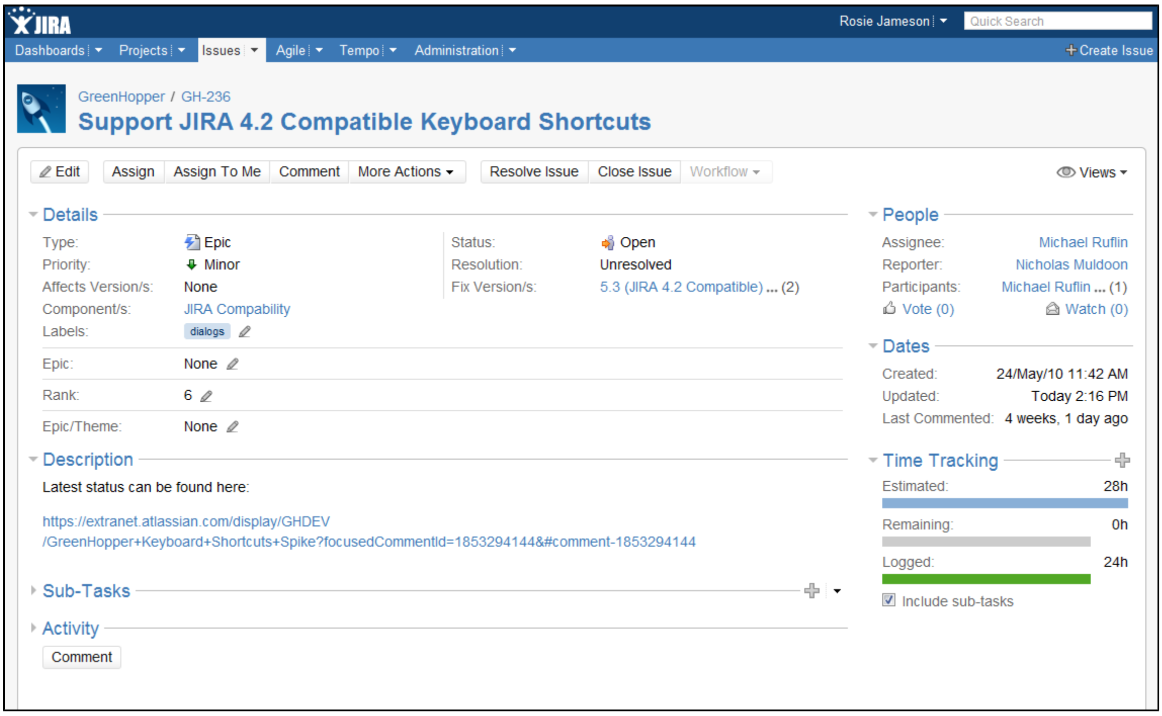

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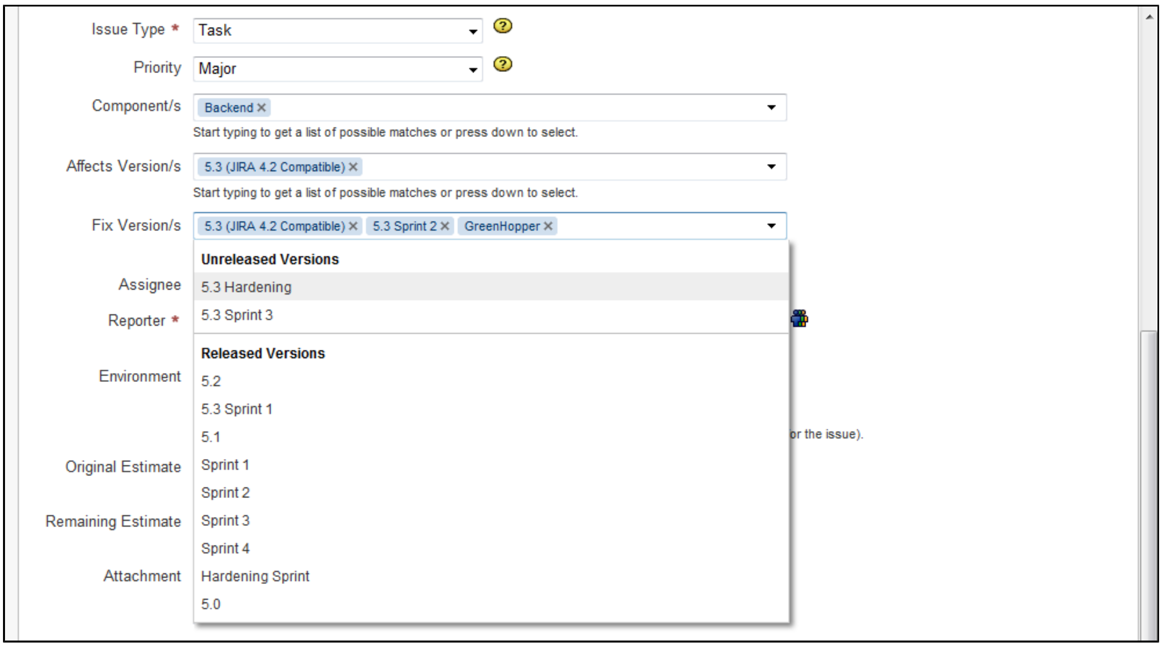

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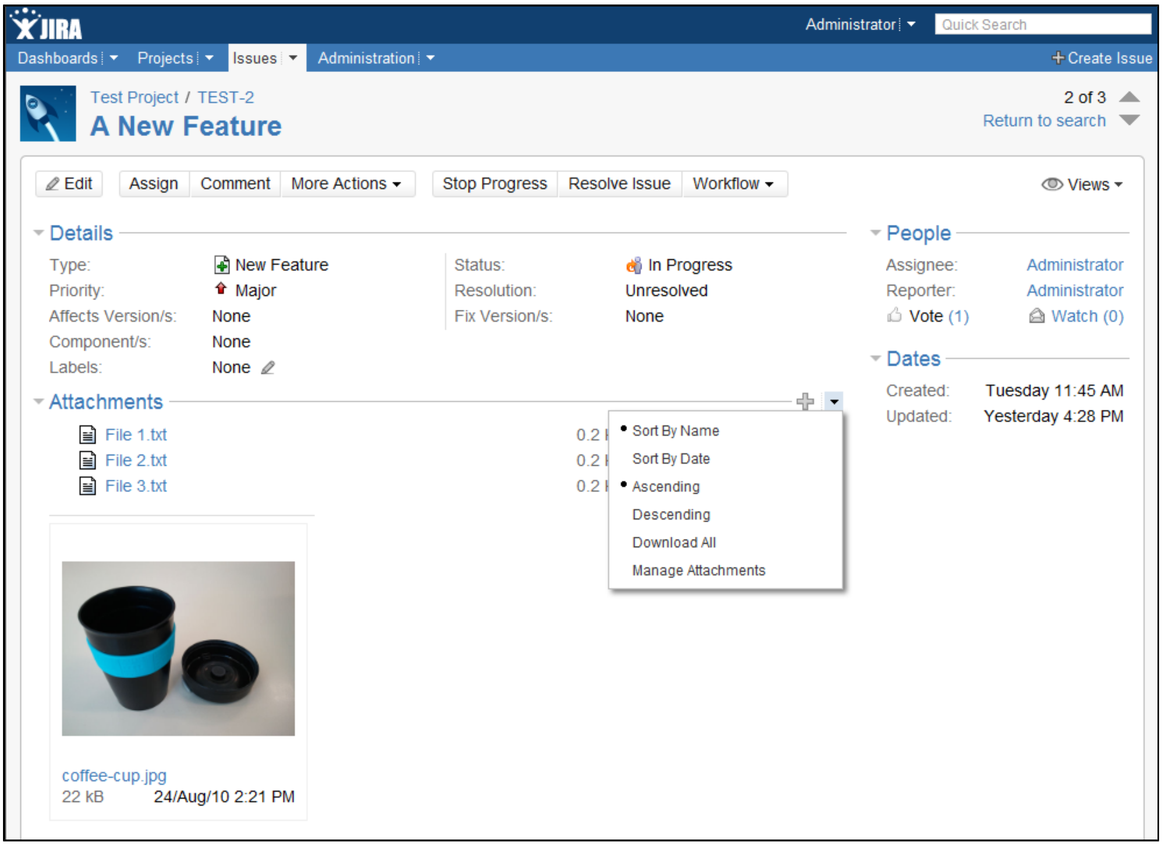
6

Attachment Sorting by Date or Name

Attachments can now be sorted by date or by name, in ascending or descending order.



See Attaching a File for more information.

^Top

7

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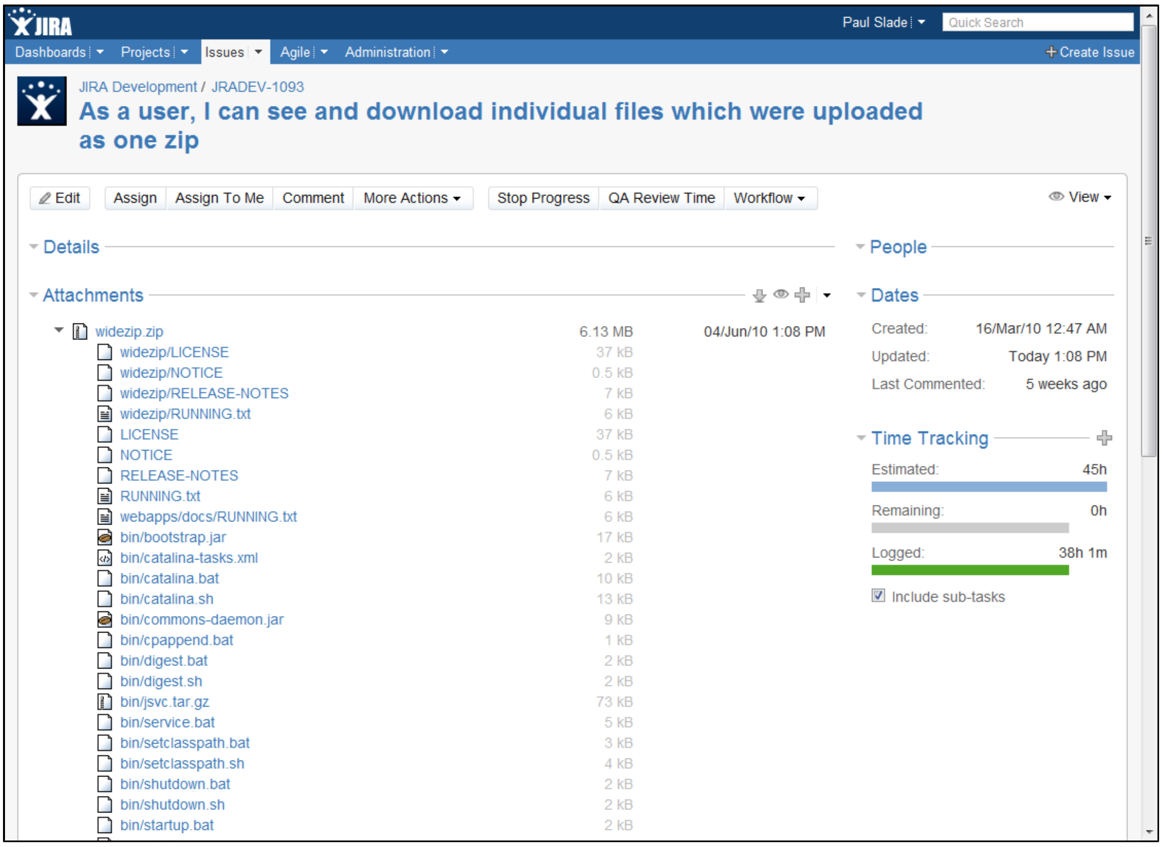

See Accessing ZIP-format File Contents for more information.

^Top

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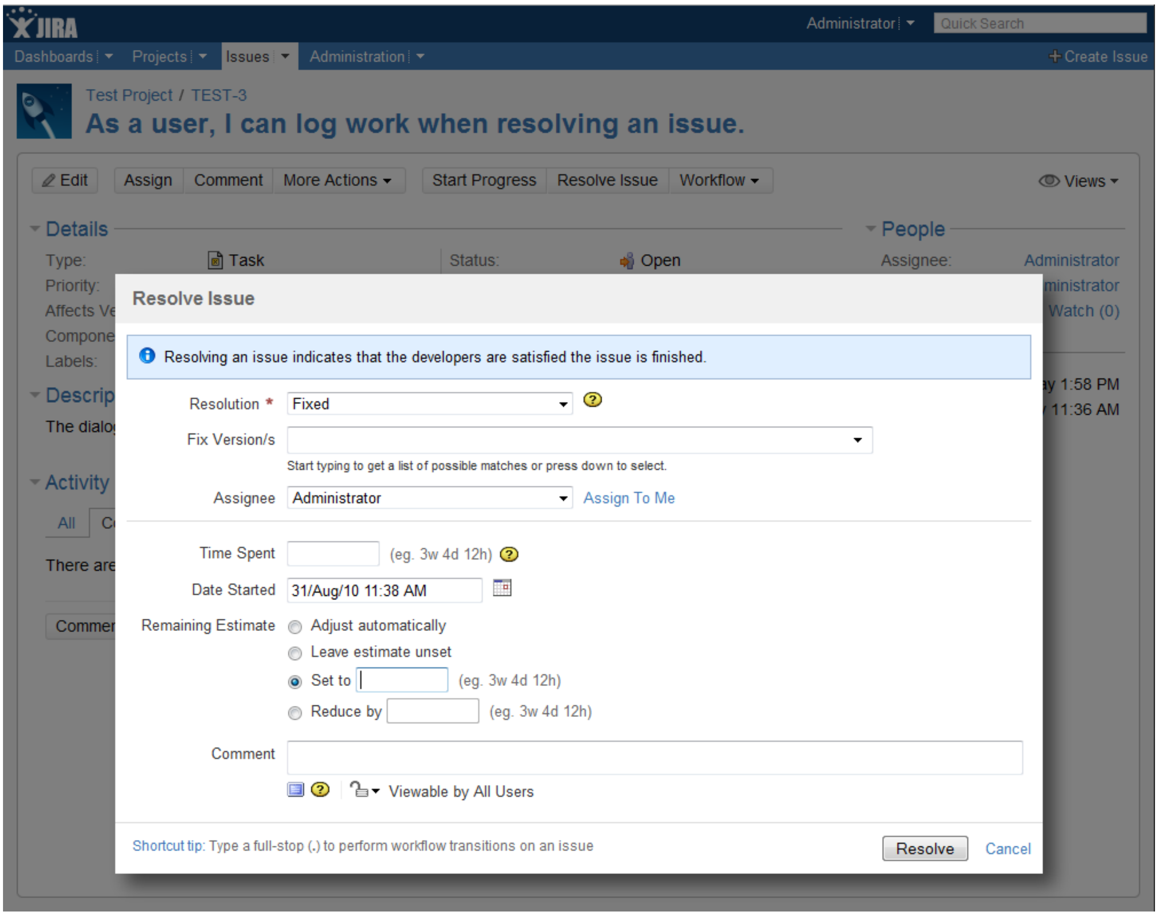

See Logging Work on an Issue for more information.

^Top

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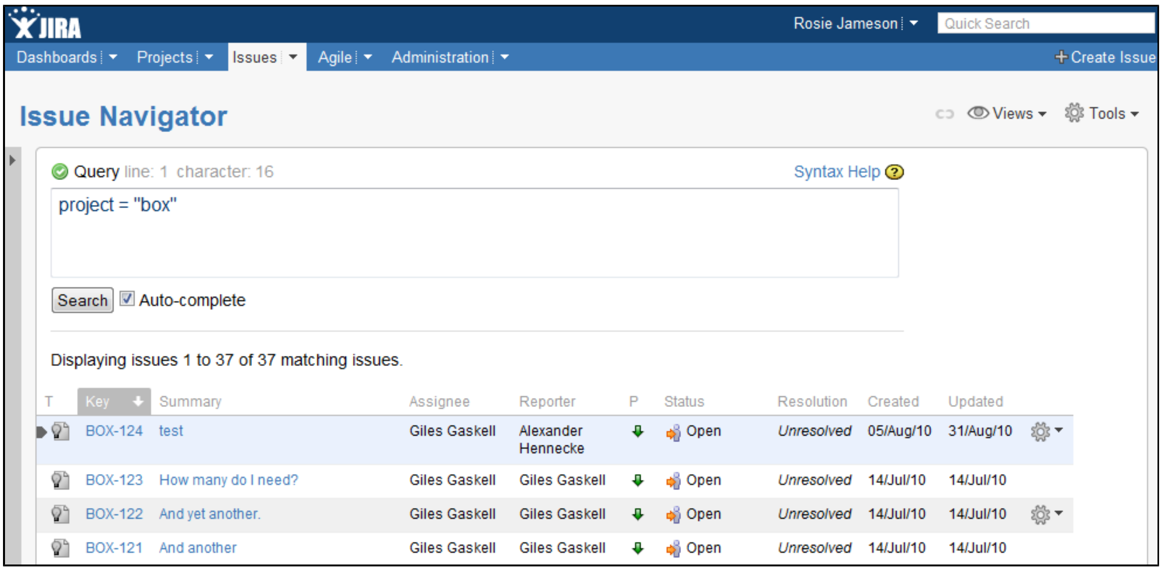

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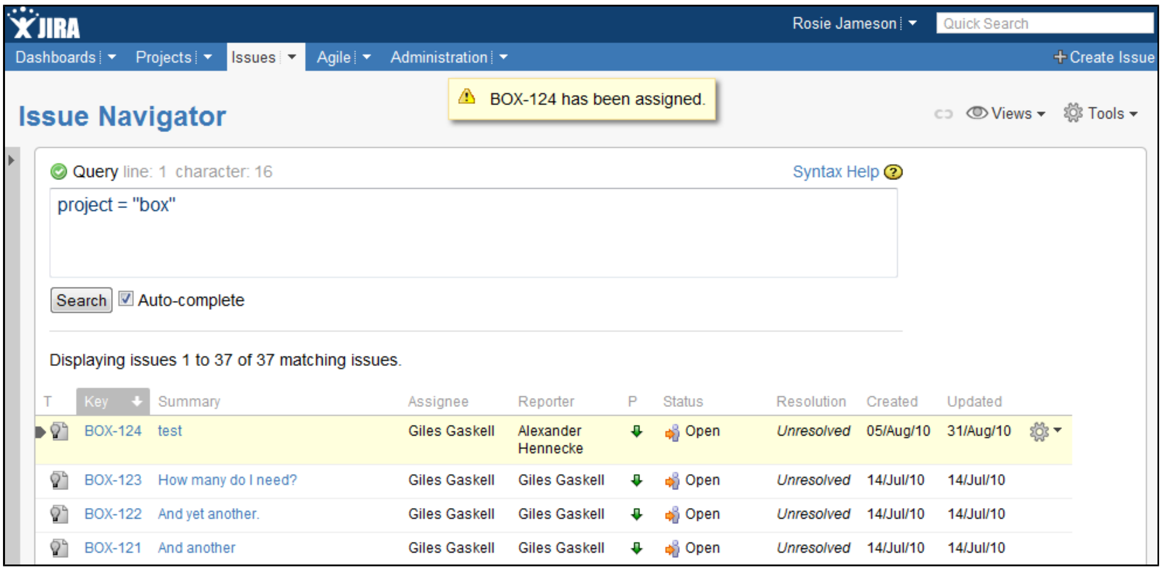

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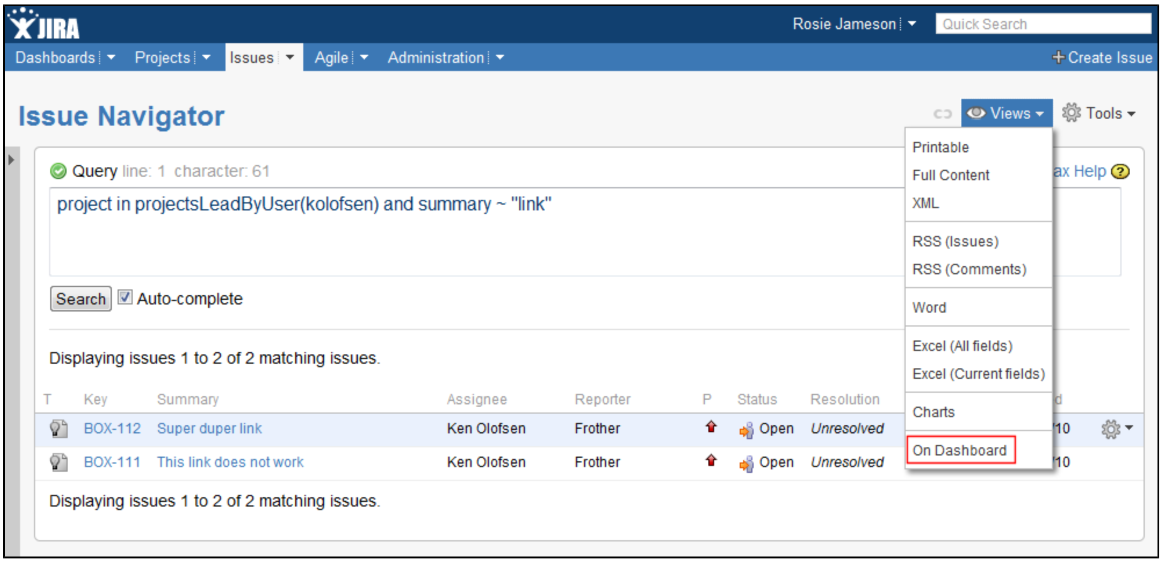
'Filter' Gadget creation via the Issue Navigator

When viewing search results, you can quickly add a 'Filter Results' gadget to your dashboard via the 'Views' menu.



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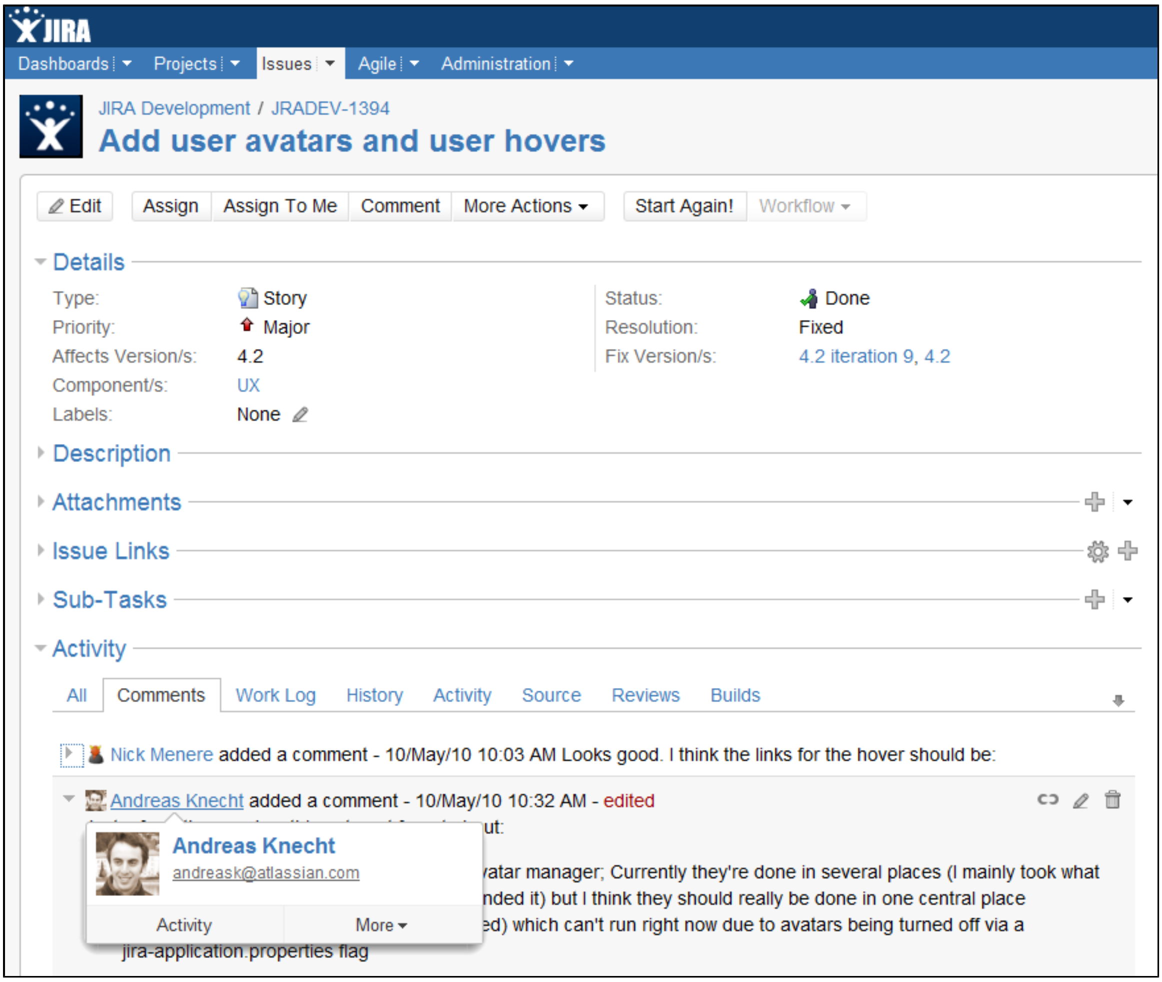
User Avatars and Hover Profile

JIRA users can now add an avatar to their profile. You can then mouse-hover over a user's name to show information about that user — this is available when viewing an issue, using the Issue Navigator, browsing a project, viewing activity, viewing a user profile and performing some administration tasks.



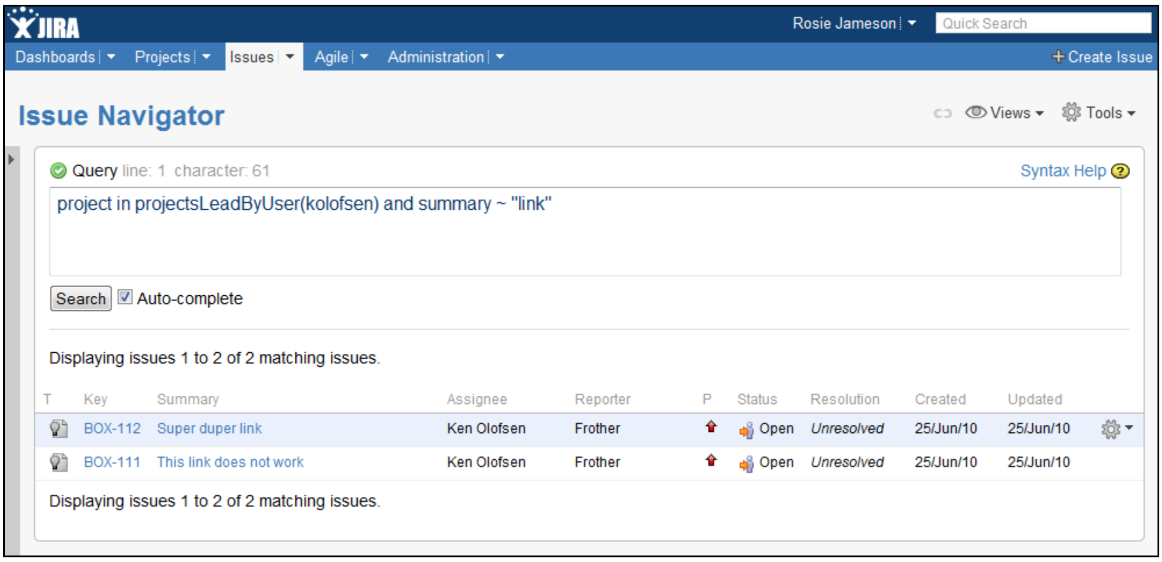
See Adding a User Avatar and Using Hover Profile for more information.

^Top

12

New JQL Functions

Additional JQL functions for projectsLeadBy and componentsLeadBy — useful for finding all issues where a particular user is the lead of a component, or a project.



See Advanced Searching for more information.

^Top

13

Other Enhancements and Fixes

- If you use Firefox or IE, you can now search JIRA issues from the convenience of your browser's search box. Just add your JIRA site as a search engine/provider, via the dropdown menu next to the browser's search box. This is because JIRA now supports the autodiscovery part of the OpenSearch standard.
- Click here for the full list of issues resolved in 4.2.

^Top

JIRA 4.2 Beta 3 Release Notes

29 September 2010

JIRA 4.2 Beta 3 is a public development release leading up to **JIRA 4.2**. For all production use and testing of JIRA, please use the latest official release.

A **Beta release** is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release.

> **Do not use in production**
> Beta releases should not be used in production environments as they are not officially supported.

> **Please also take note of the following information:**
>
> - **Beta releases are not safe** — Beta releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
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The Atlassian team is proud to bring you the JIRA 4.2 Beta 3 release. As always, we would love to hear your feedback and comments about this release. To keep the discussion centralised, please provide your feedback as a comment on JRA-22093.

JIRA 4.2 gives you a few extra minutes of precious time every day, by providing the ability to triage issues directly from the Issue Navigator without you having to open each issue. For the mouse-averse, the new 'Operations Dialog' box provides access to all menu options via the keyboard.

To help speed up your ability to work on issues, we've also made common actions and workflow operations accessible from convenient dialog boxes.

Time-tracking has become much more flexible: you can now edit the Original Estimate and set the Remaining Estimate to zero when resolving an issue. You can also log work via workflow 'transition' (or any other) screens — now accessible via speedy dialog boxes.

The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users and administrators — and everyone else who likes to label their JIRA issues.

GreenHopper 5.3 Beta 3 is also available for download, and is compatible with JIRA 4.2 Beta 3.

JIRA 4.2 Beta 3 differs from the Beta 2 release in the following respects:

- The FishEye plugin was upgraded
- The auto-complete feature for multi-select fields (such as the Component and Versions fields) contains several performance improvements and bug fixes
- The JQL auto-complete feature is now much faster and more responsive
- Several fixes were made to the '*Are you sure you want to navigate away from this page?*' confirmation message to make it less obtrusive
- The REST API contains several bug fixes

- Several web browser-specific bugs were fixed

Note to developers: JIRA 4.2 includes the Atlassian Plugin Framework version 2.5, and an alpha release of the JIRA REST API. We are very keen to hear your feedback on the REST API — please try it out and add your comments to JRA-22139.

Supported Platforms: Please note from our announcements in late 2009/early 2010 that JIRA 4.2 will not support Oracle WebLogic, IBM WebSphere, Java Platform 5 and Internet Explorer 6.

Highlights of JIRA 4.2 :

- Dialogs for Common Actions and Workflow Operations
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Thank you for your interest in JIRA 4.2 Beta 3
Download Beta

> **Upgrading to JIRA 4.2 Beta 3**
> JIRA Beta releases are available here. Before upgrading, please refer to the JIRA 4.2 Upgrade Guide.

Highlights of JIRA 4.2

1

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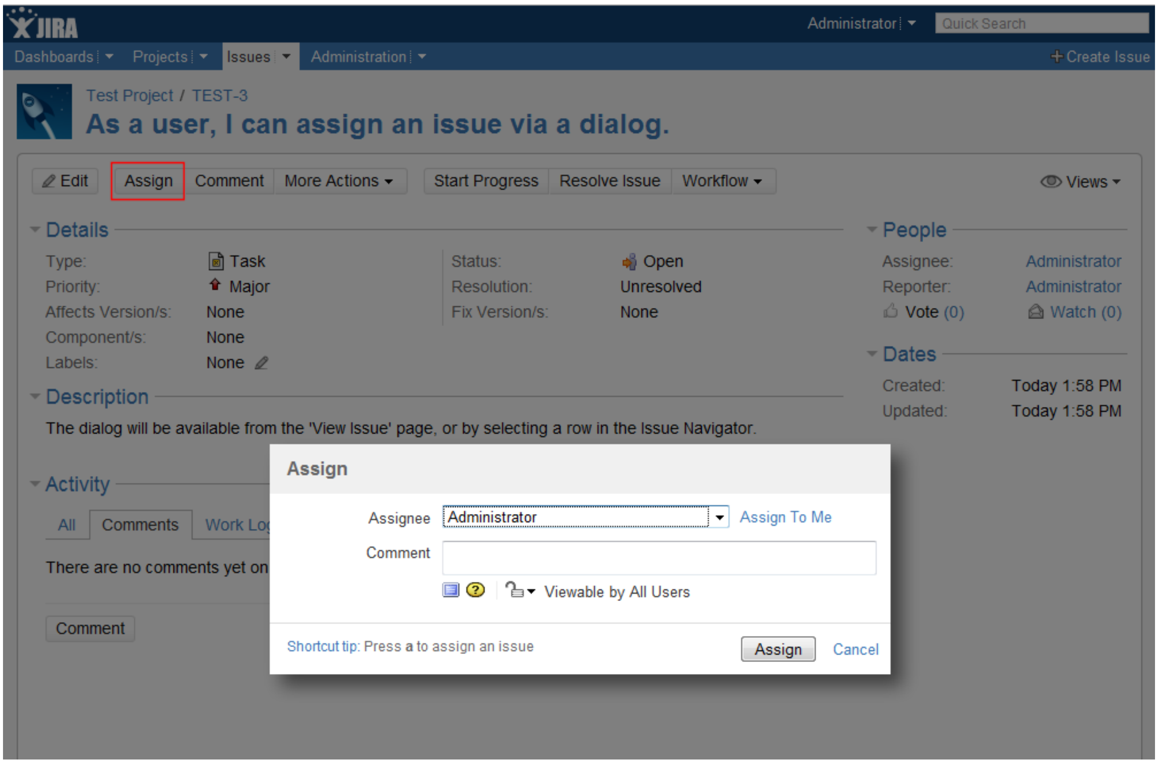

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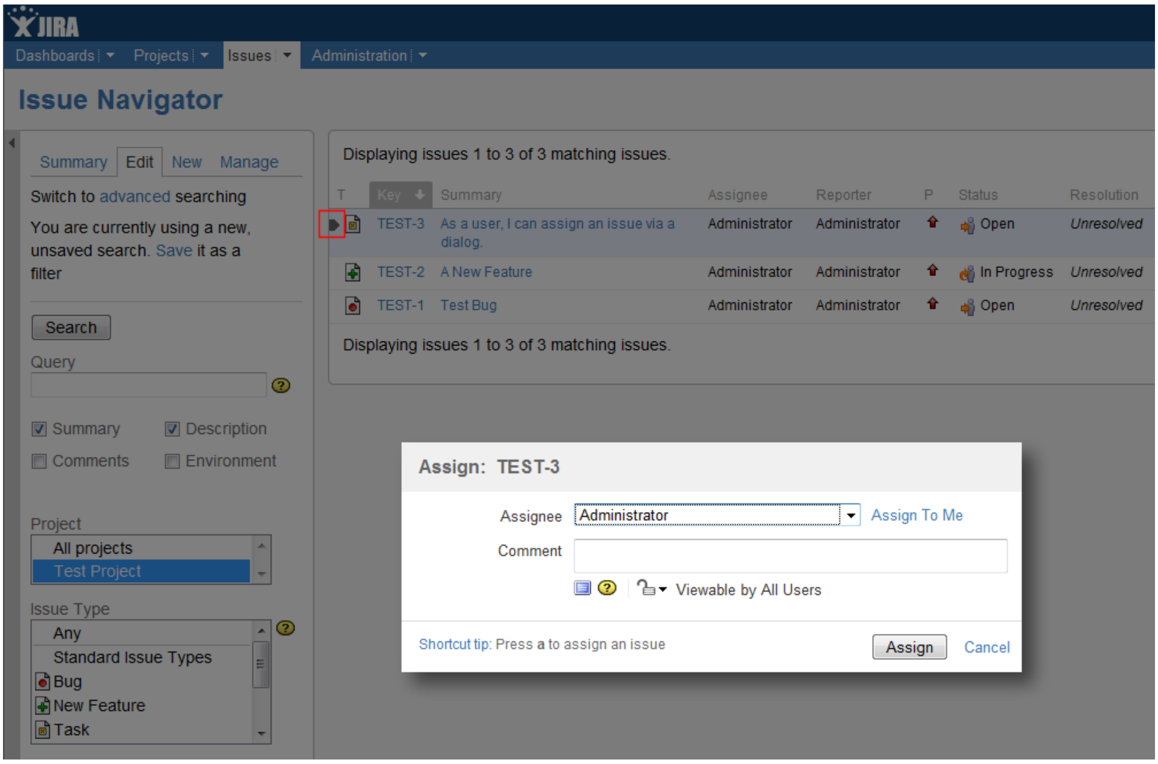

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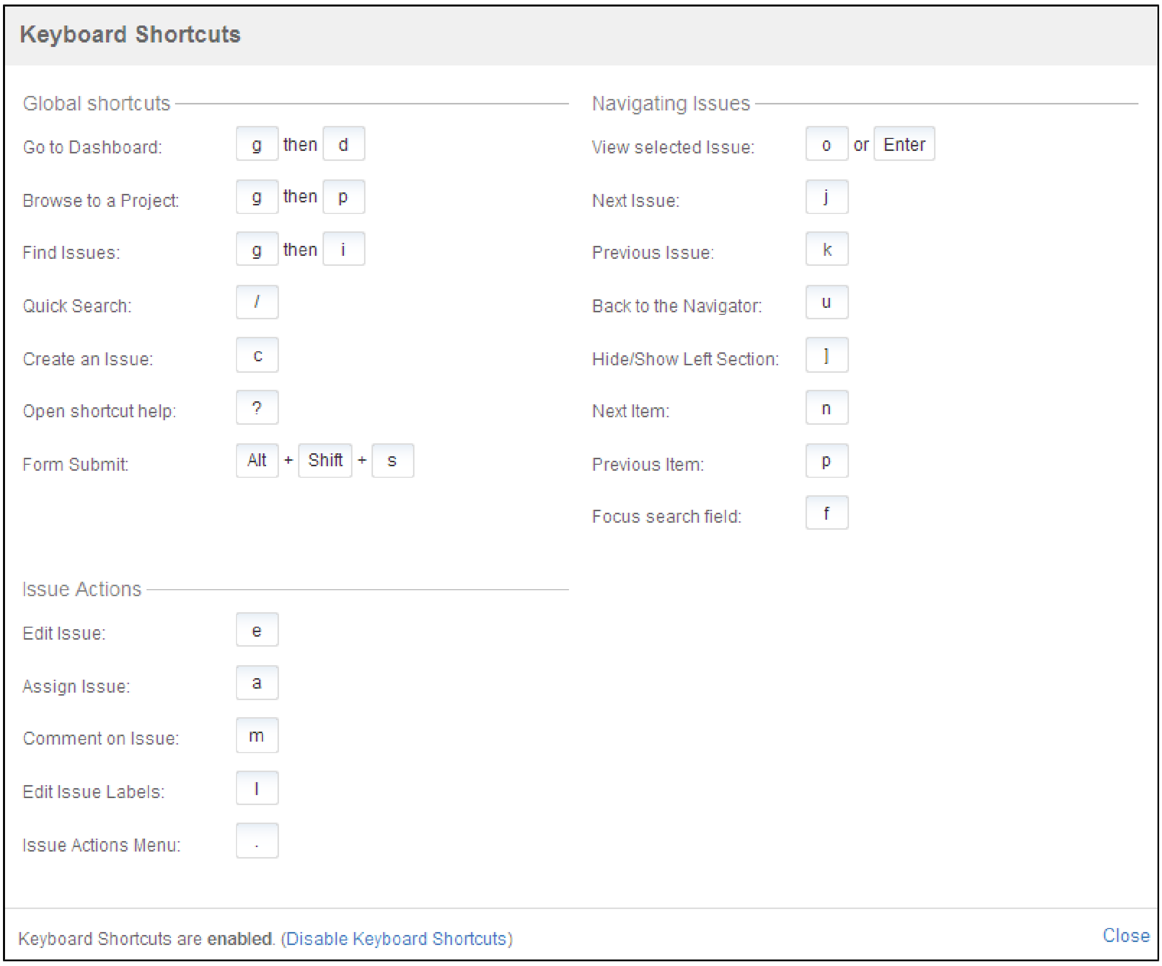

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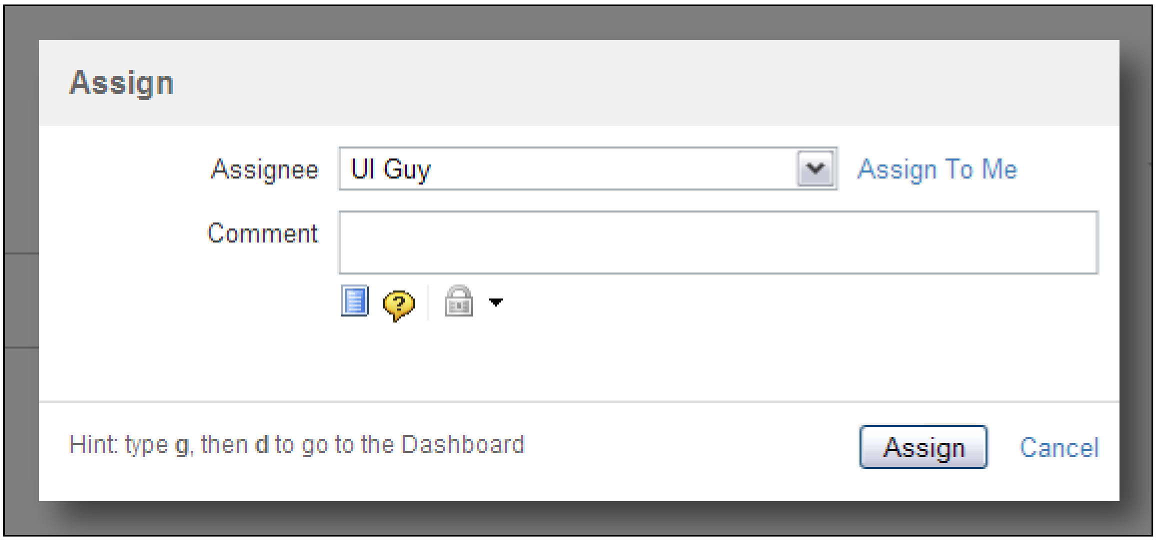

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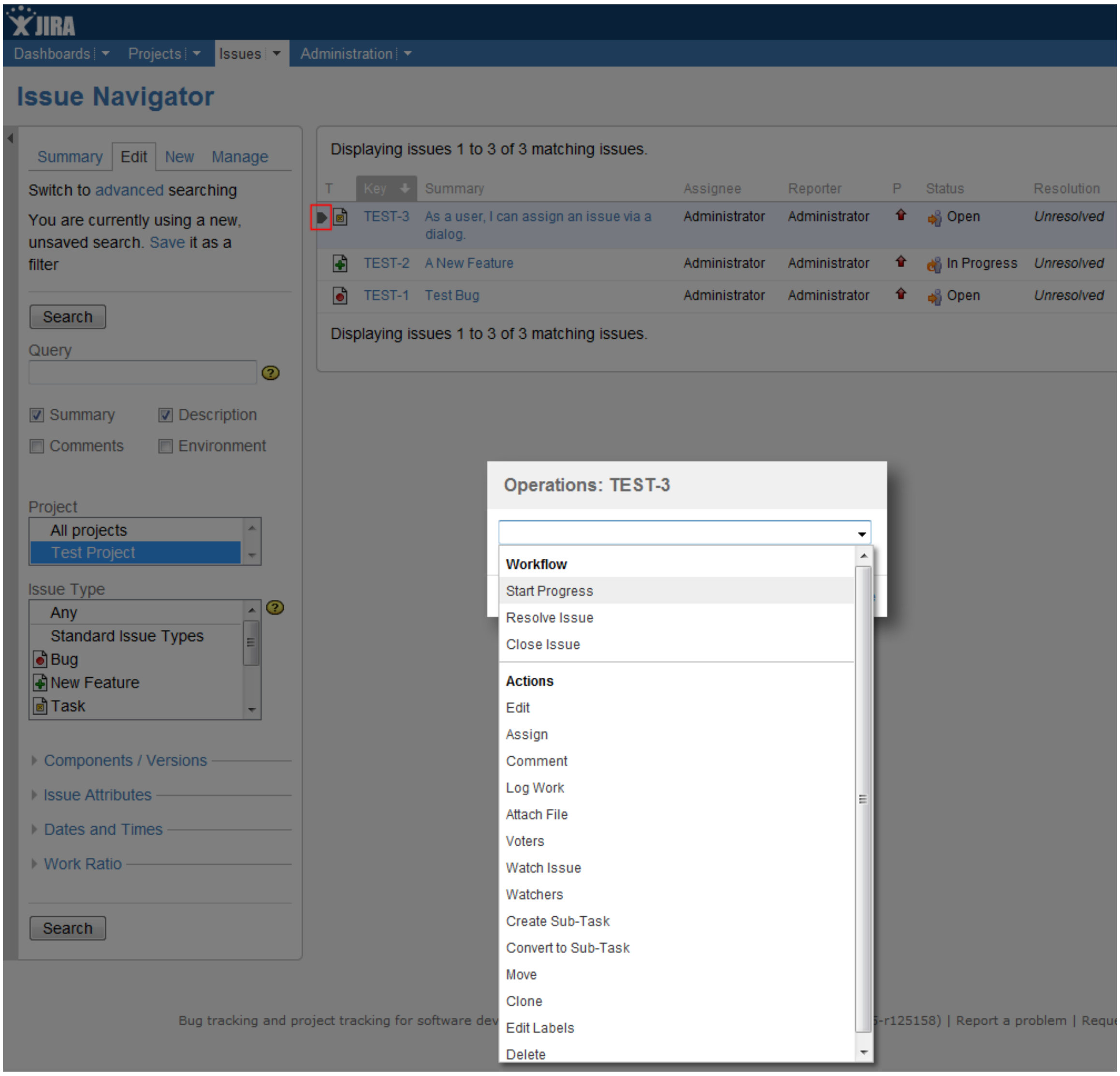

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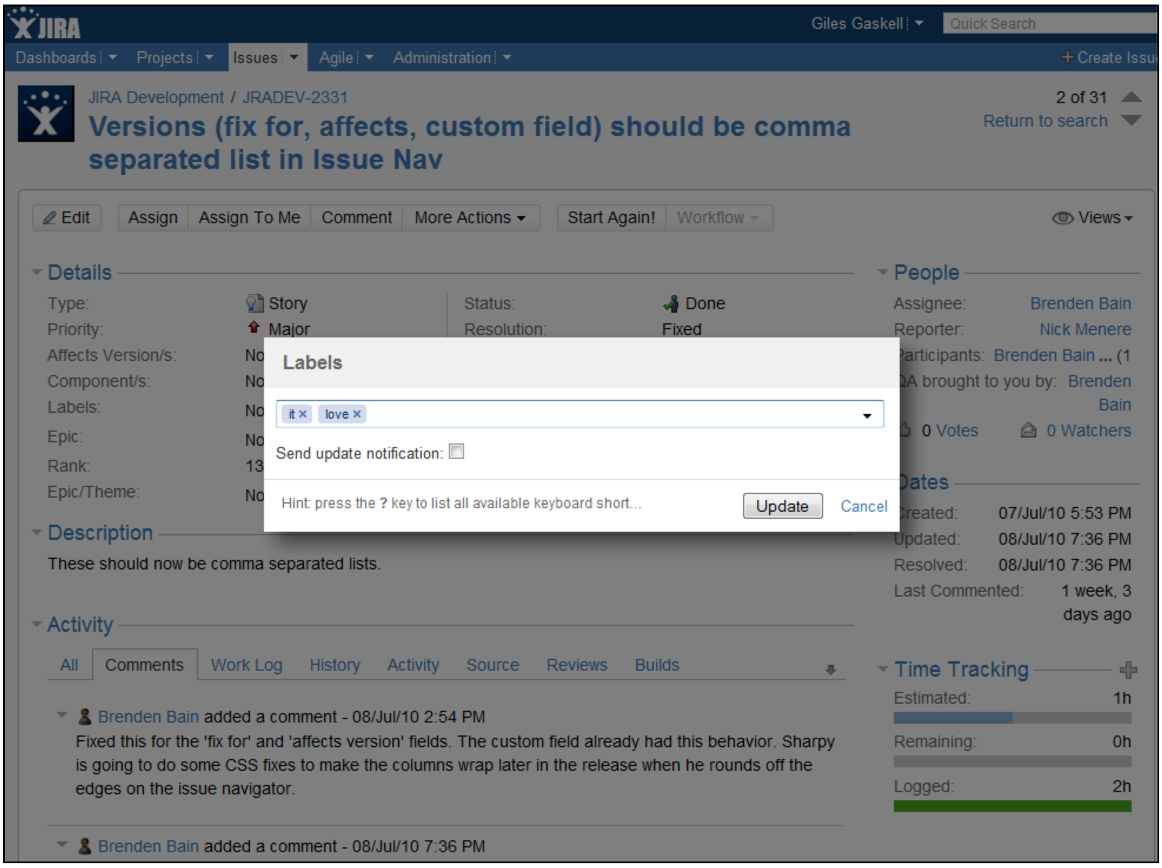

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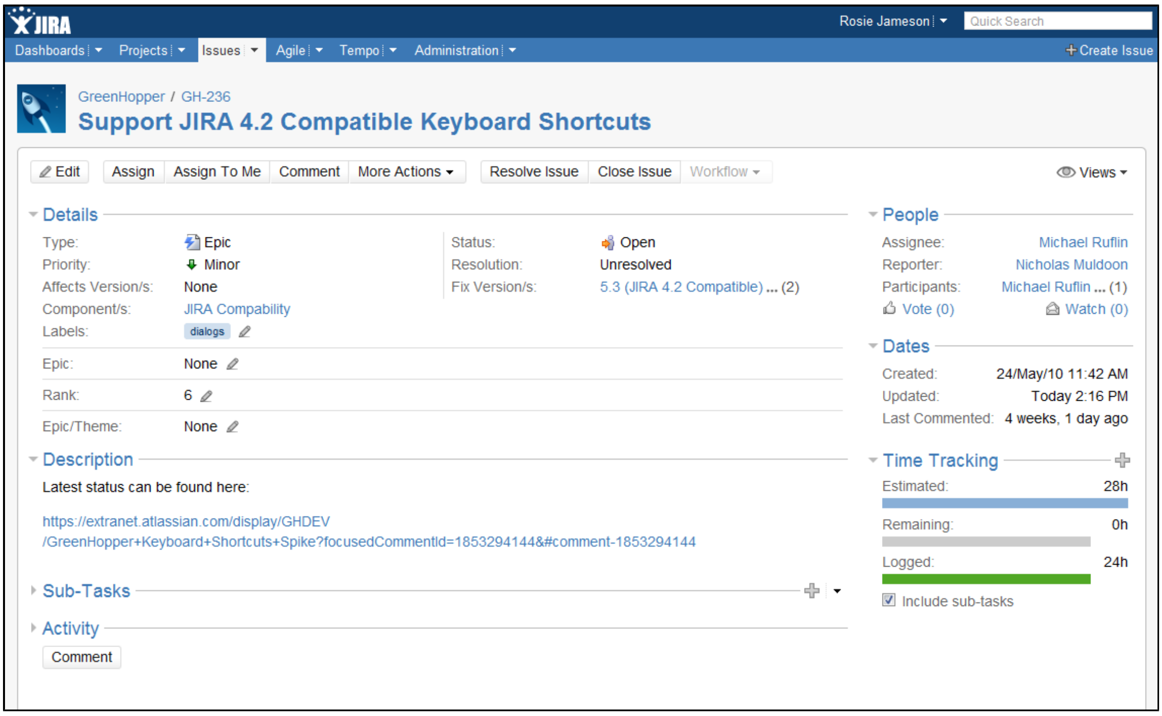

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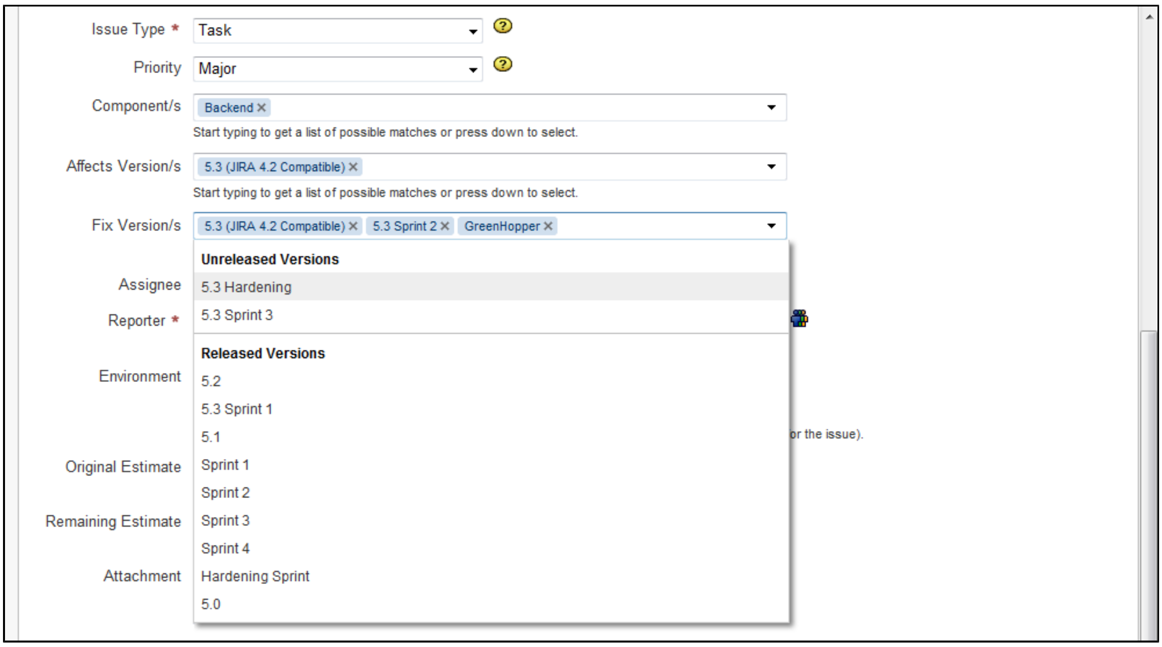

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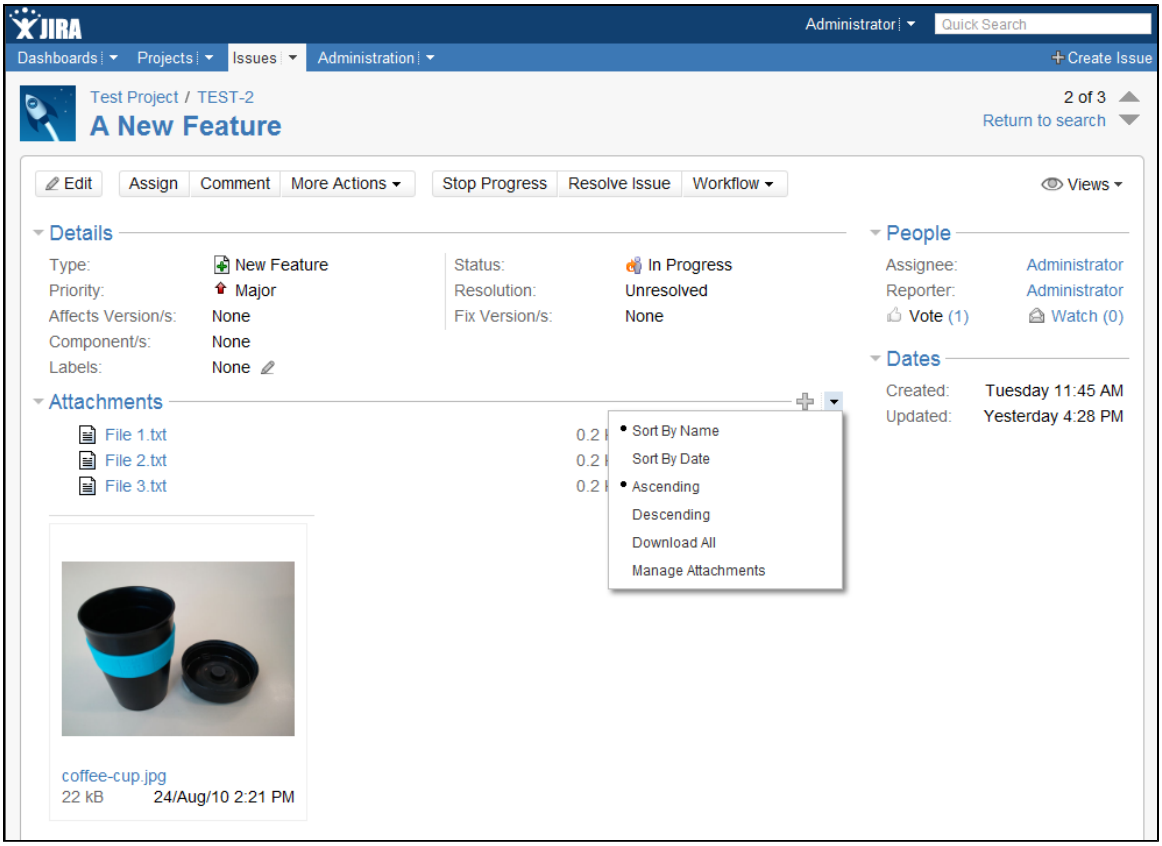

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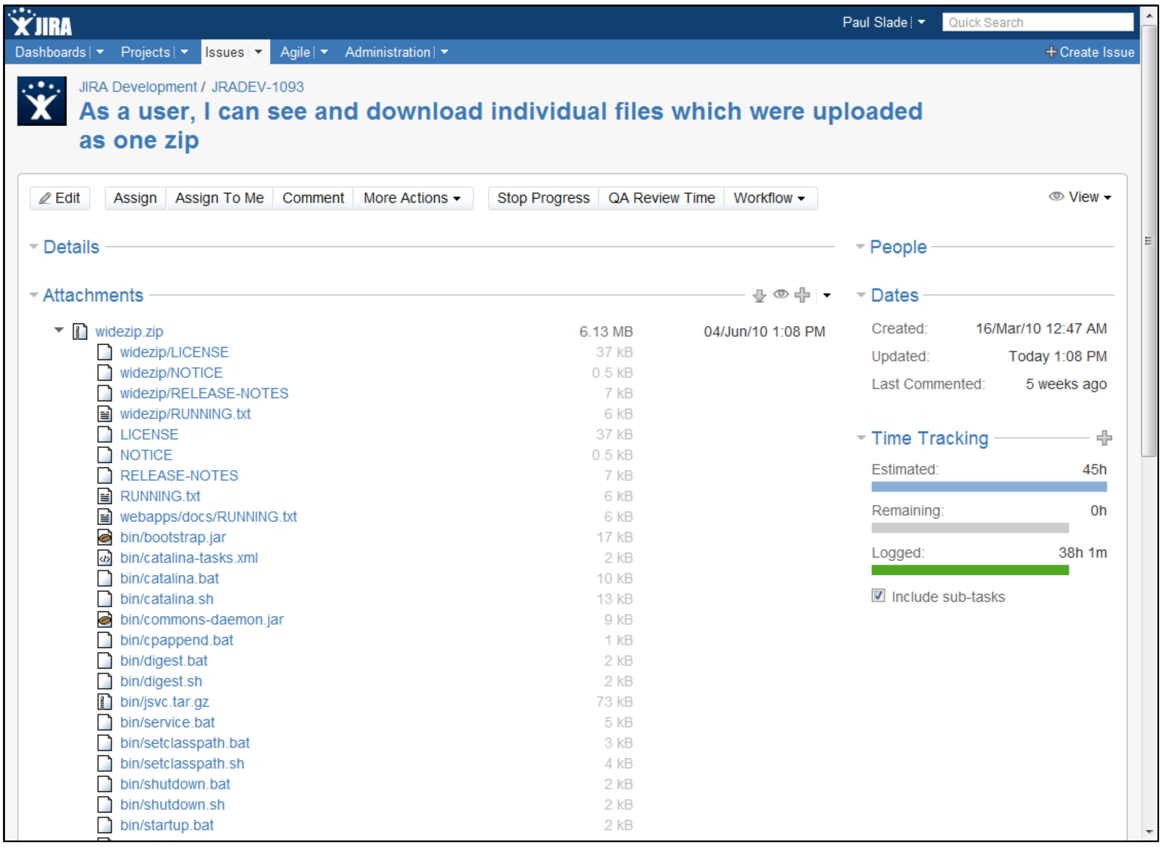

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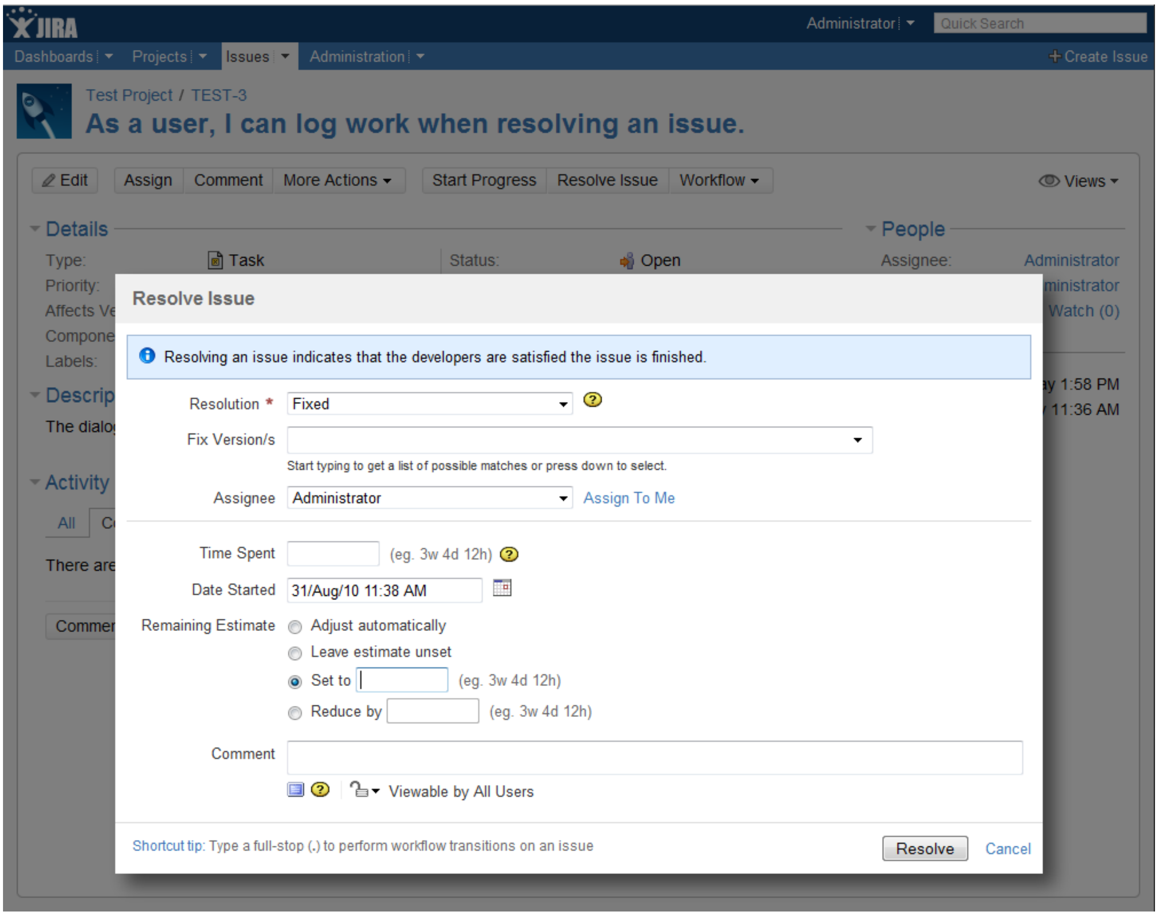

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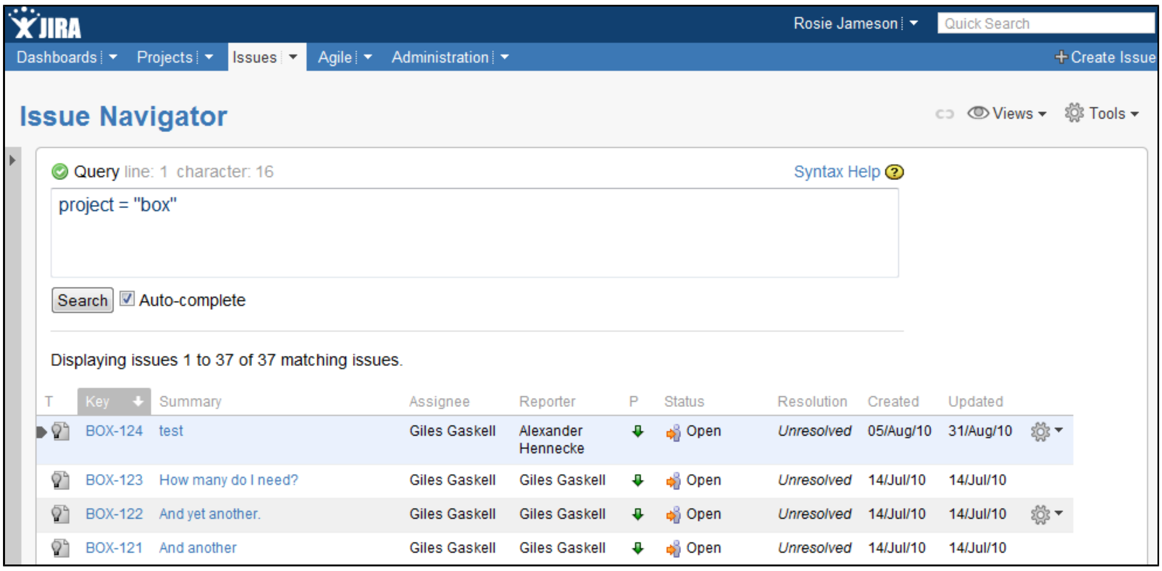

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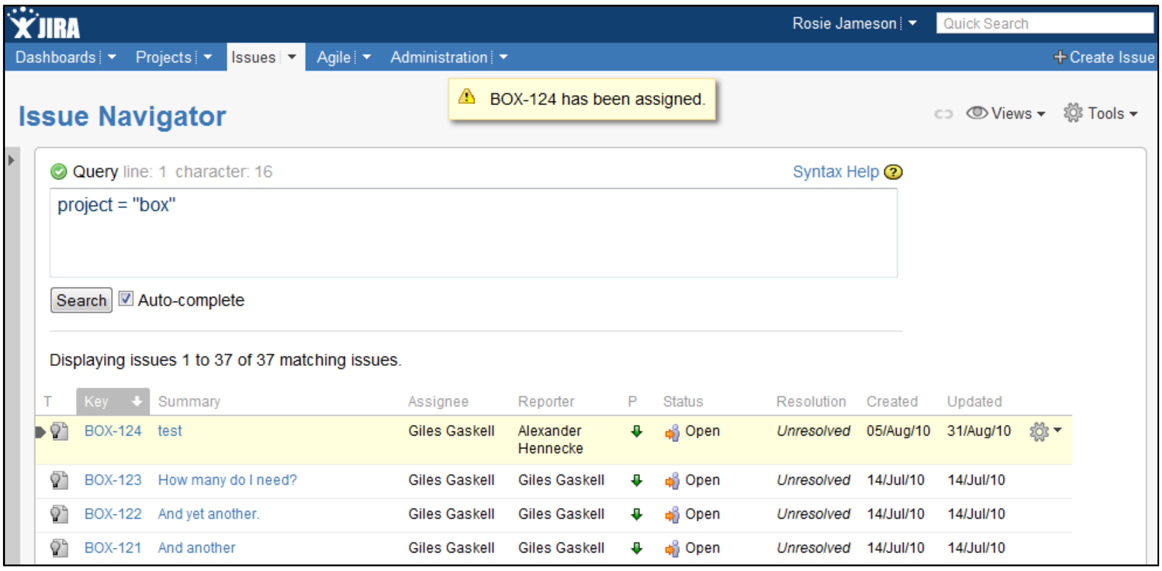

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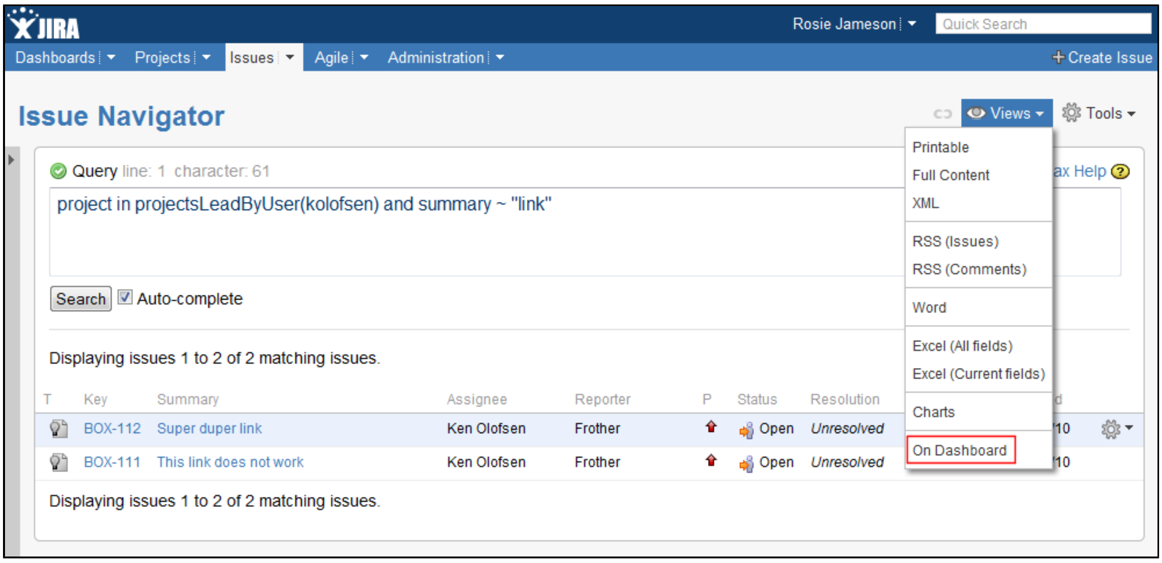

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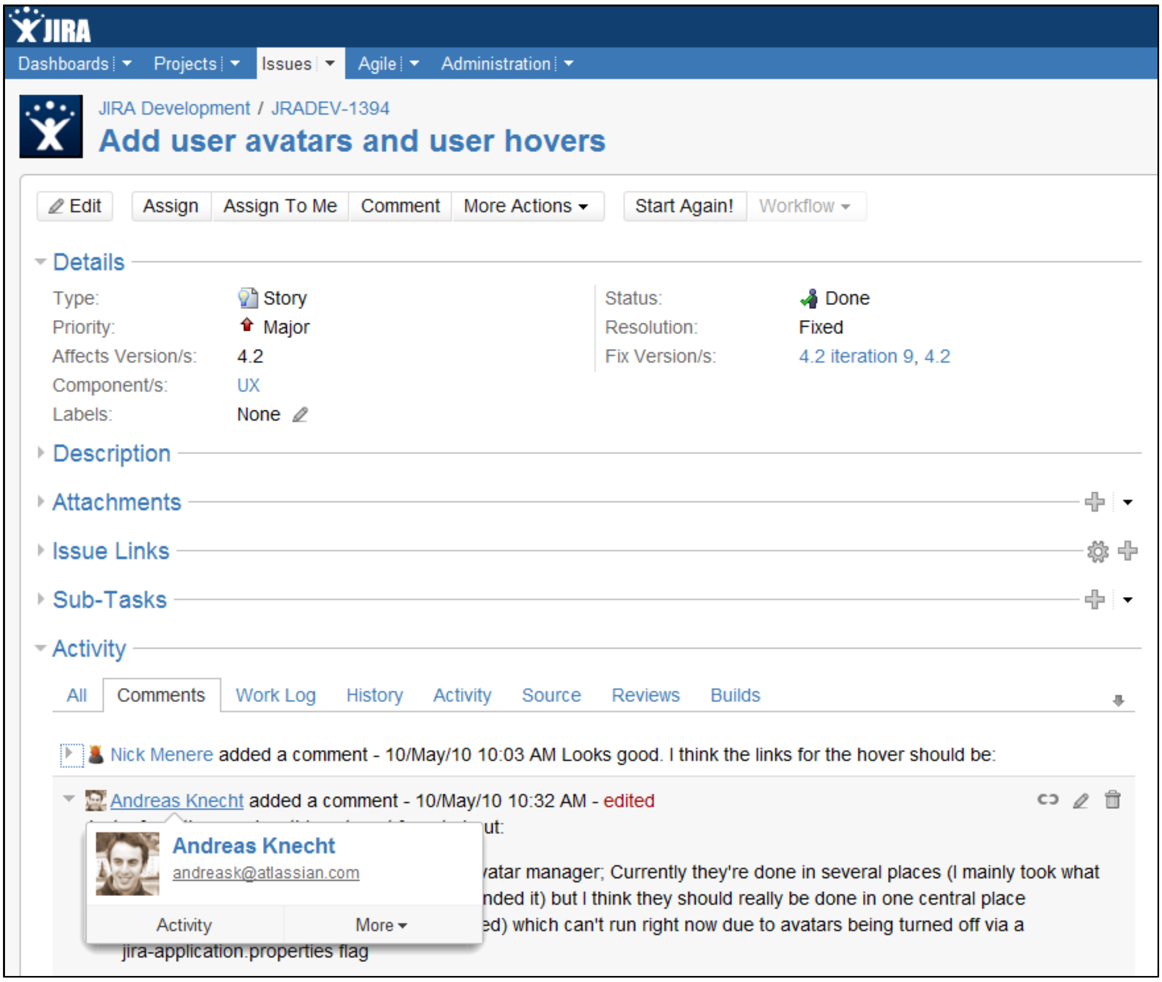

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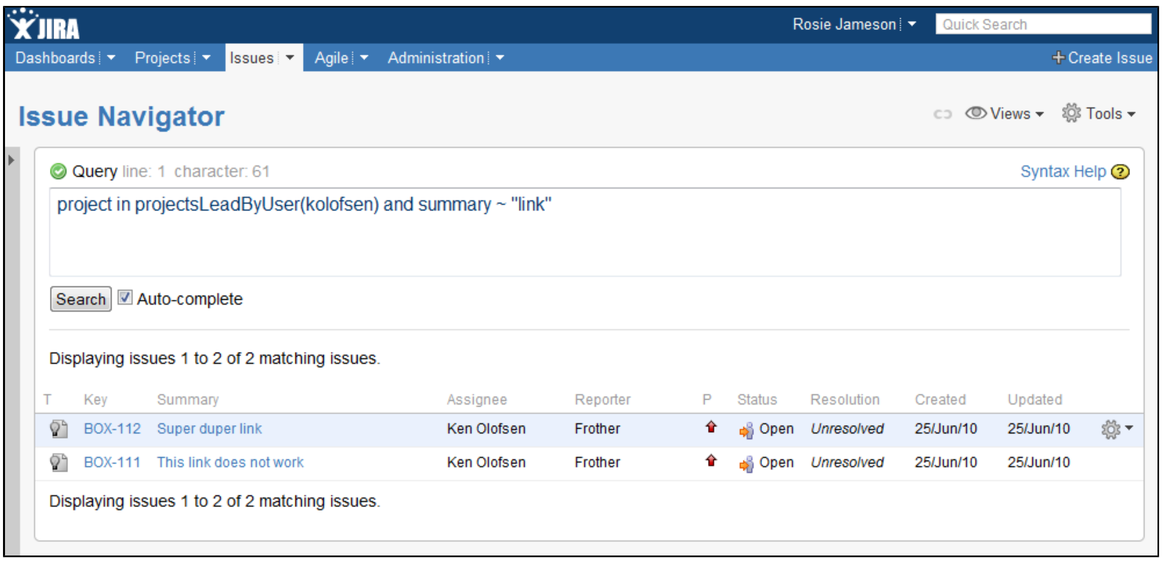

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JIRA 4.2 Beta 2 Release Notes

15 September 2010

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The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users and administrators — and everyone else who likes to label their JIRA issues.

GreenHopper 5.3 Beta 2 is also available for download, and is compatible with JIRA 4.2 Beta 2.

Differences between JIRA 4.2 Beta 1 and Beta 2:

- JIRA 4.2 Beta 2 includes a number of bug fixes, including an issue with the dialog boxes and mod_proxy.
- The JIRA 4.2 documentation is being released with Beta 2. We would be very grateful for your feedback — please leave comments on individual pages.

Note to developers: JIRA 4.2 includes the Atlassian Plugin Framework version 2.5, and an alpha release of the JIRA REST API. We are very keen to hear your feedback on the REST API — please try it out and add your comments to JRA-22139.

Highlights of JIRA 4.2 :

- Dialogs for Common Actions and Workflow Operations
- Keyboard Shortcuts and 'Operations Dialog'
- Issue Labelling
- Improvements to the 'View Issue' Screen
- Auto-complete for Versions and Components
- Attachment Sorting by Date or Name
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- User Avatars and Hover Profile
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- Other Enhancements and Fixes

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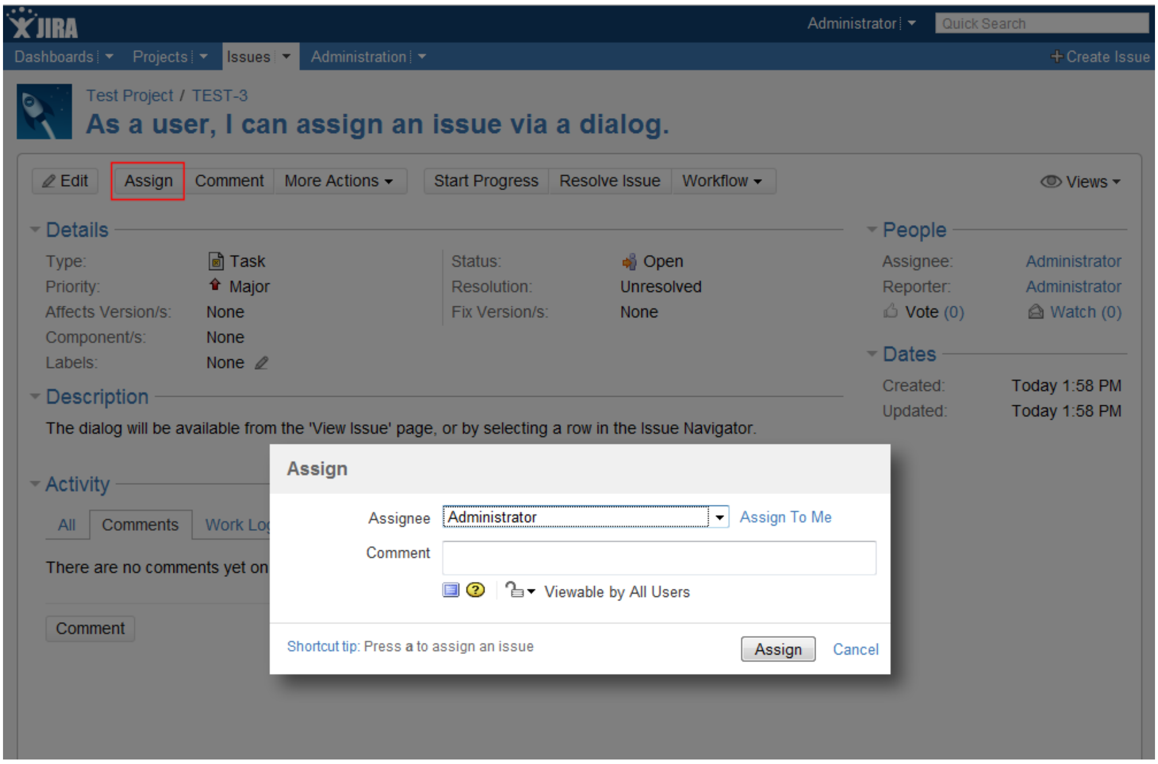

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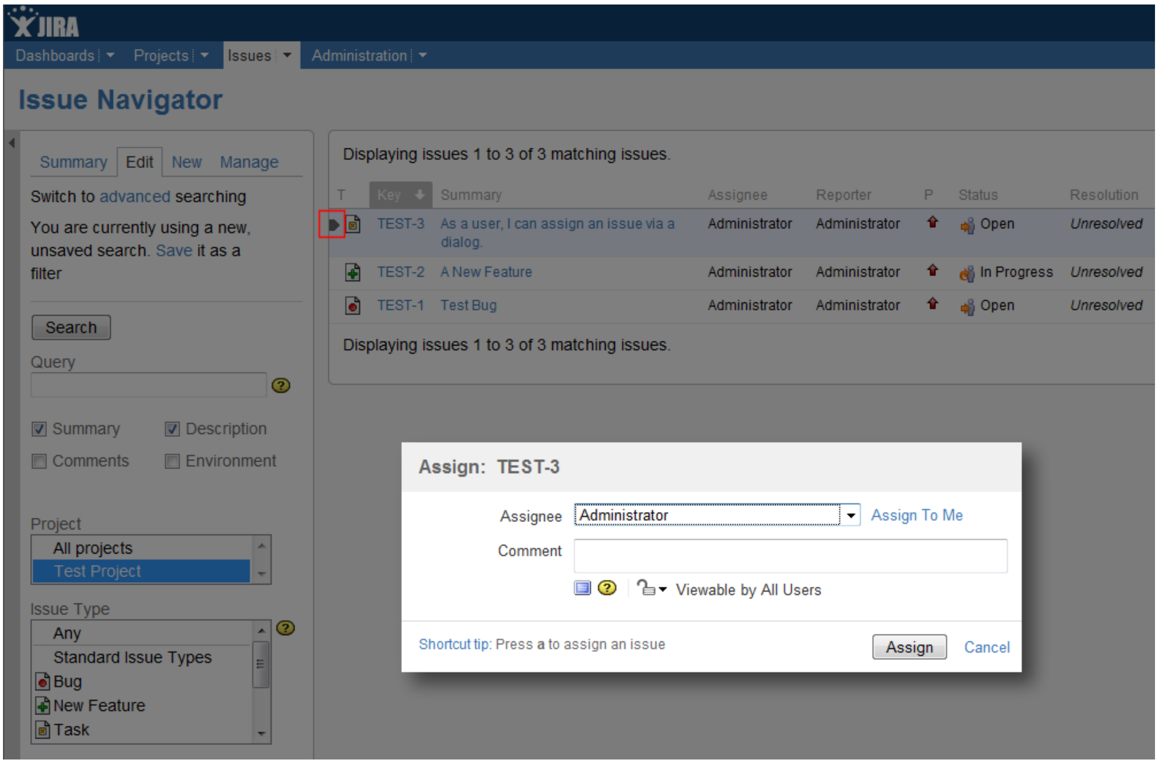

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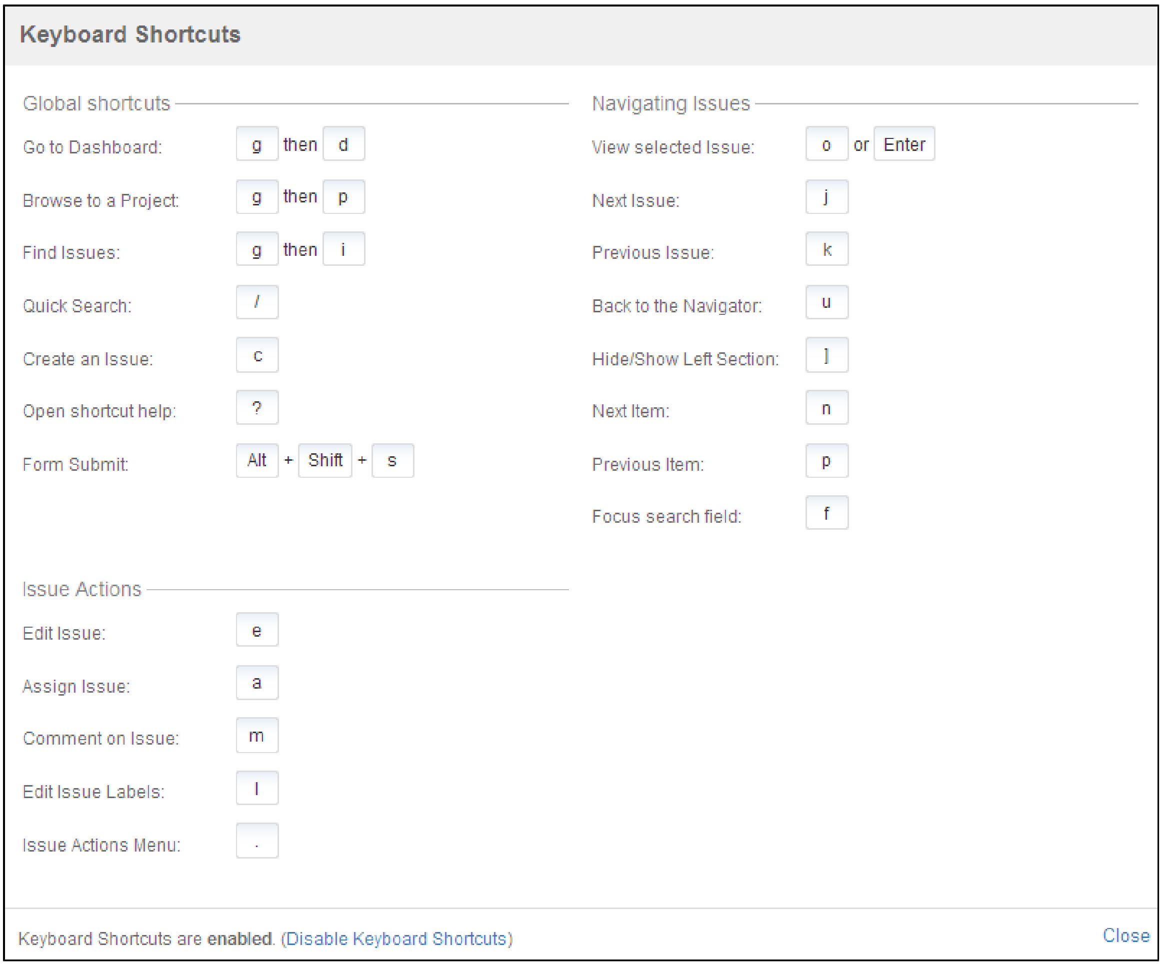

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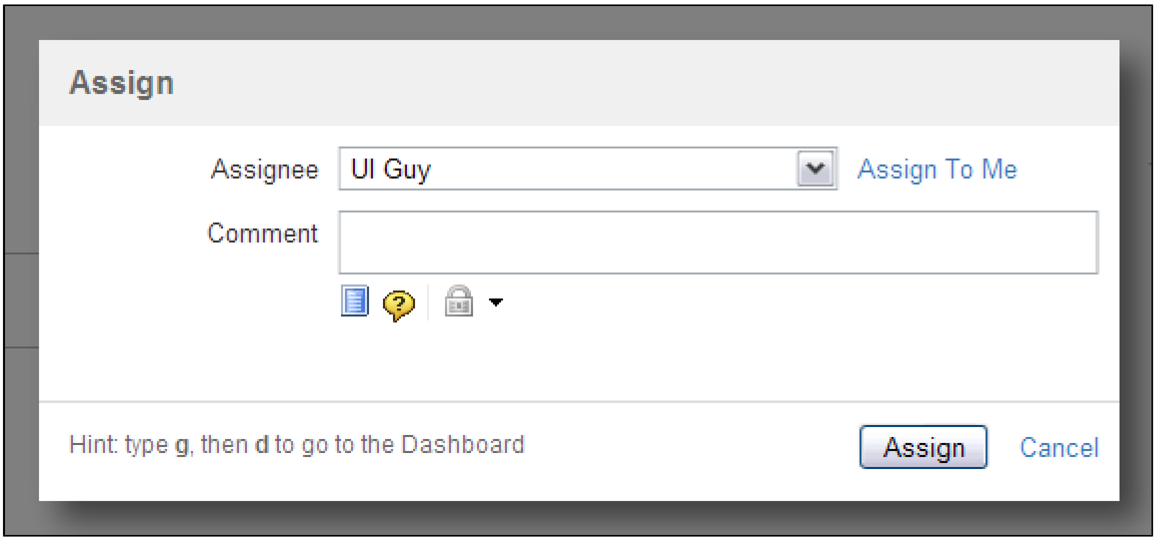

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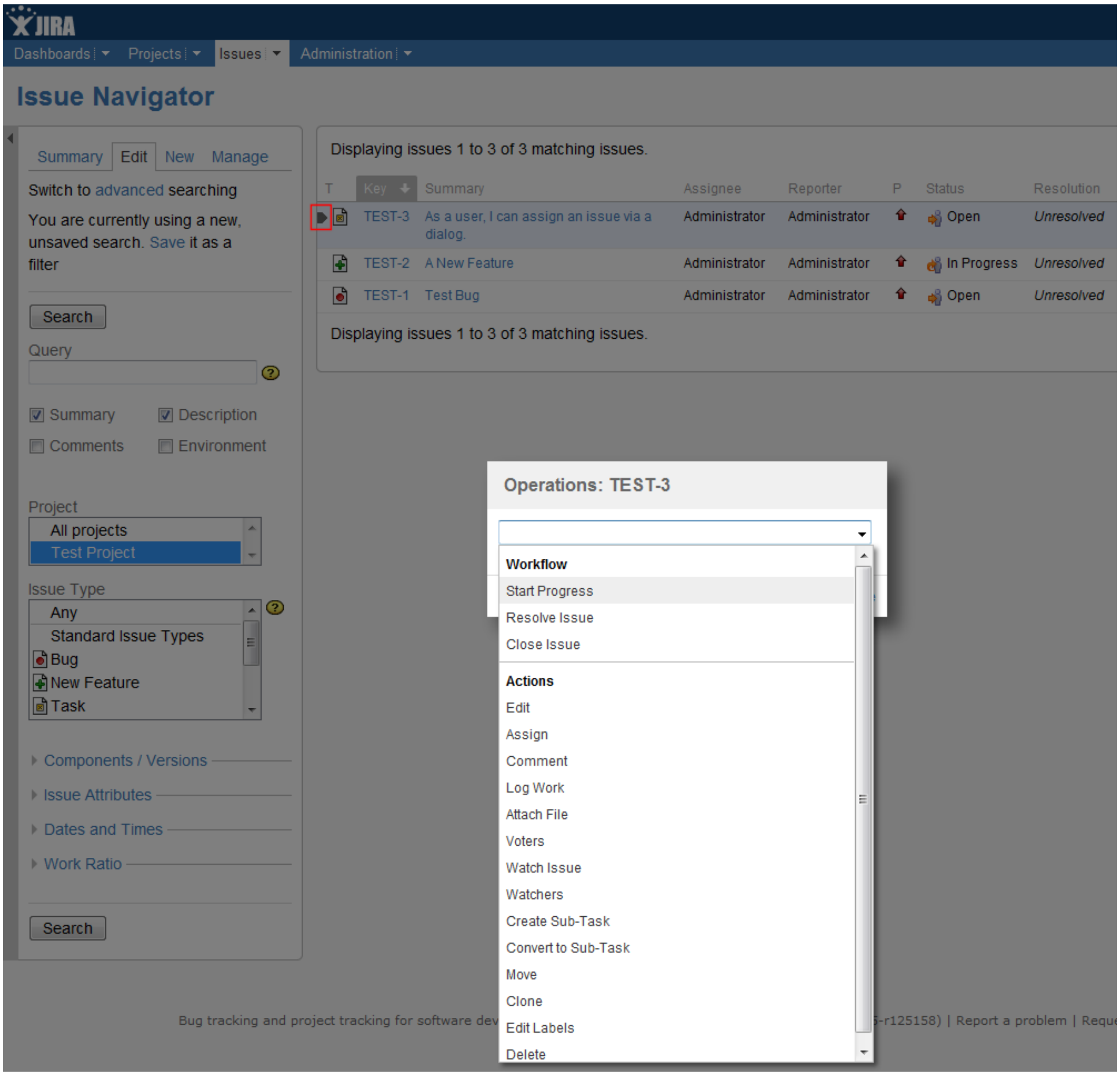

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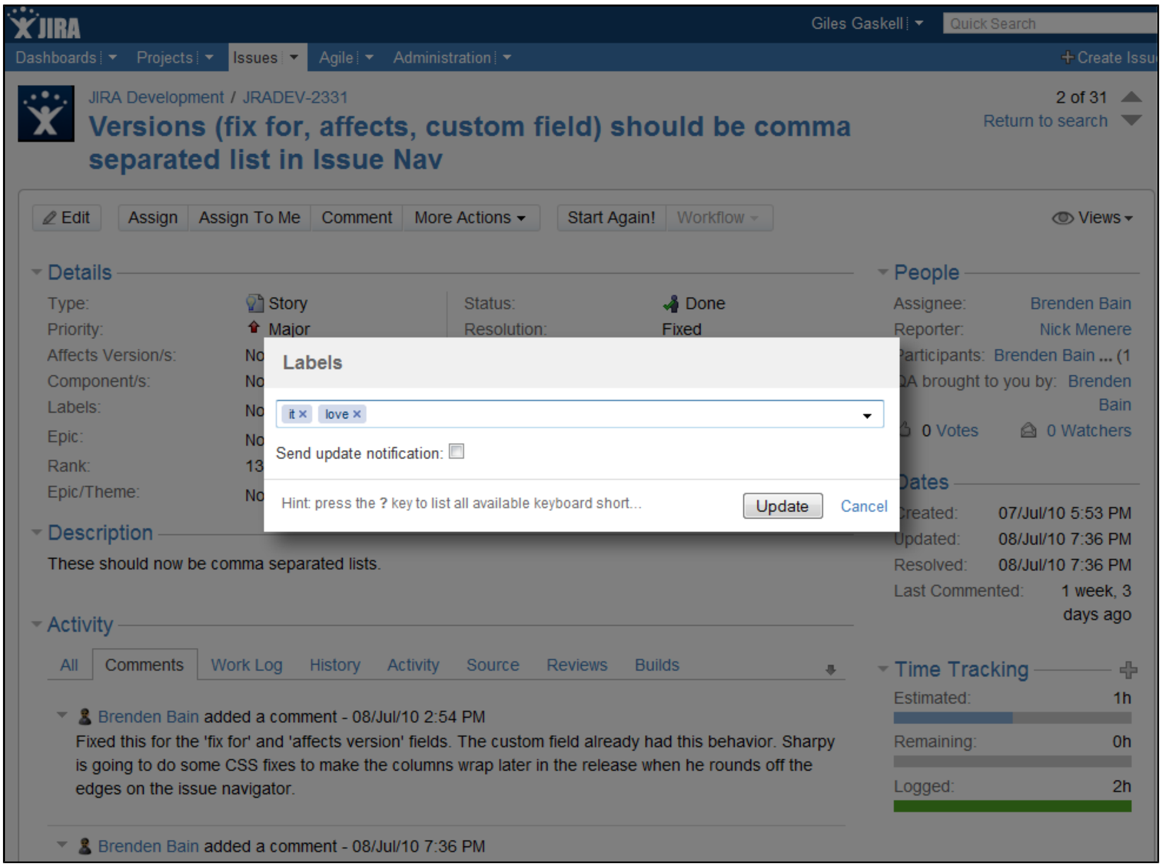

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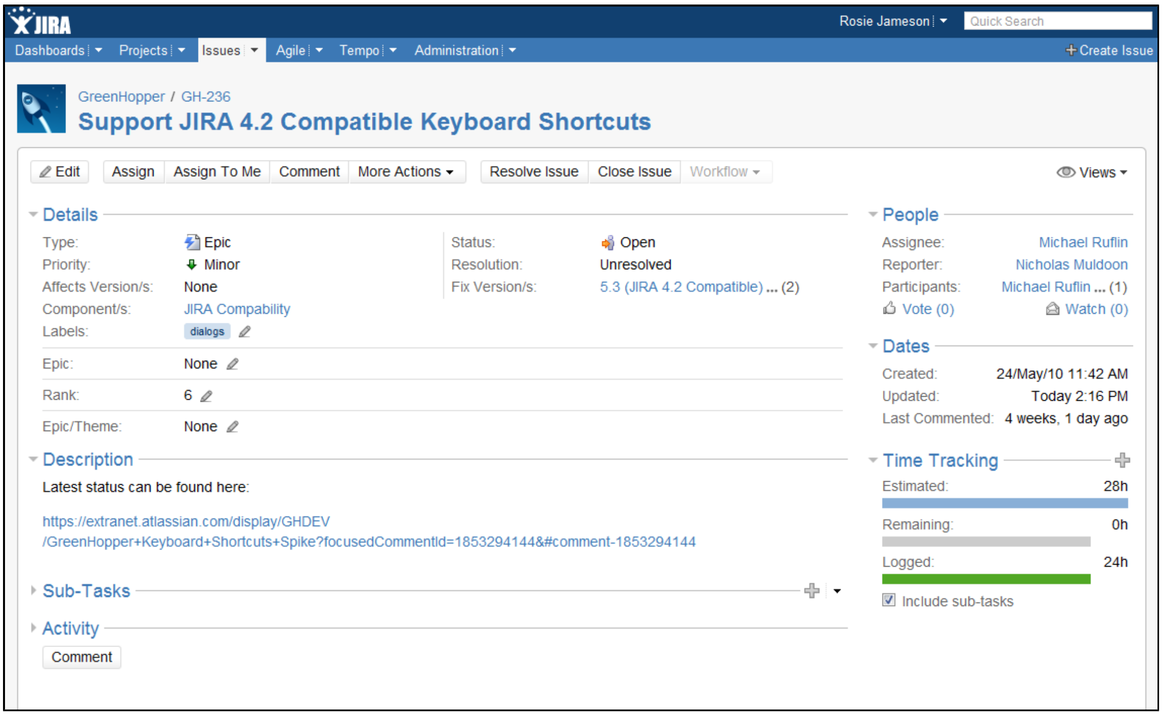

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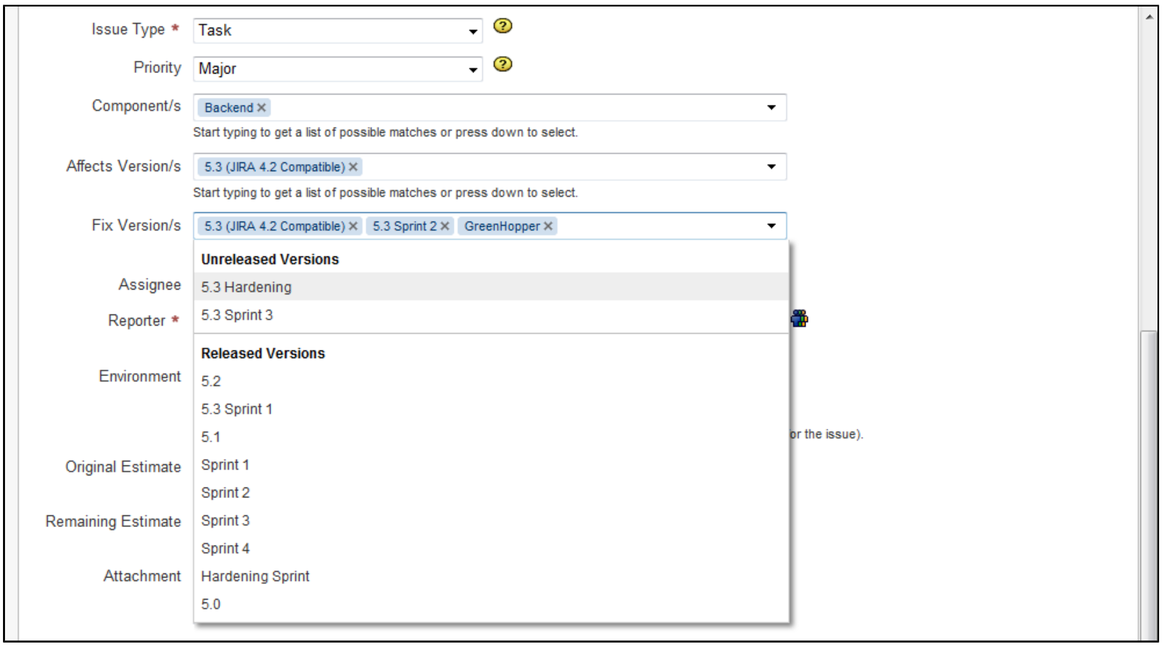

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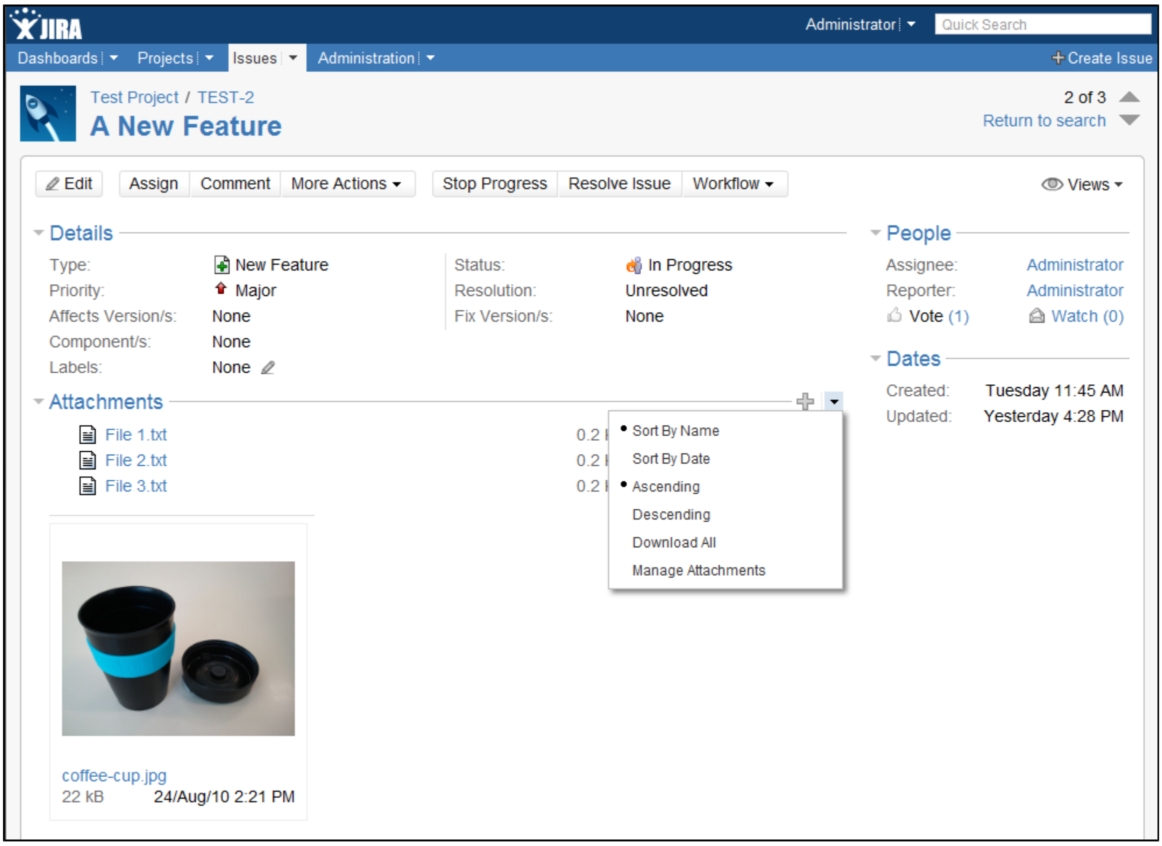

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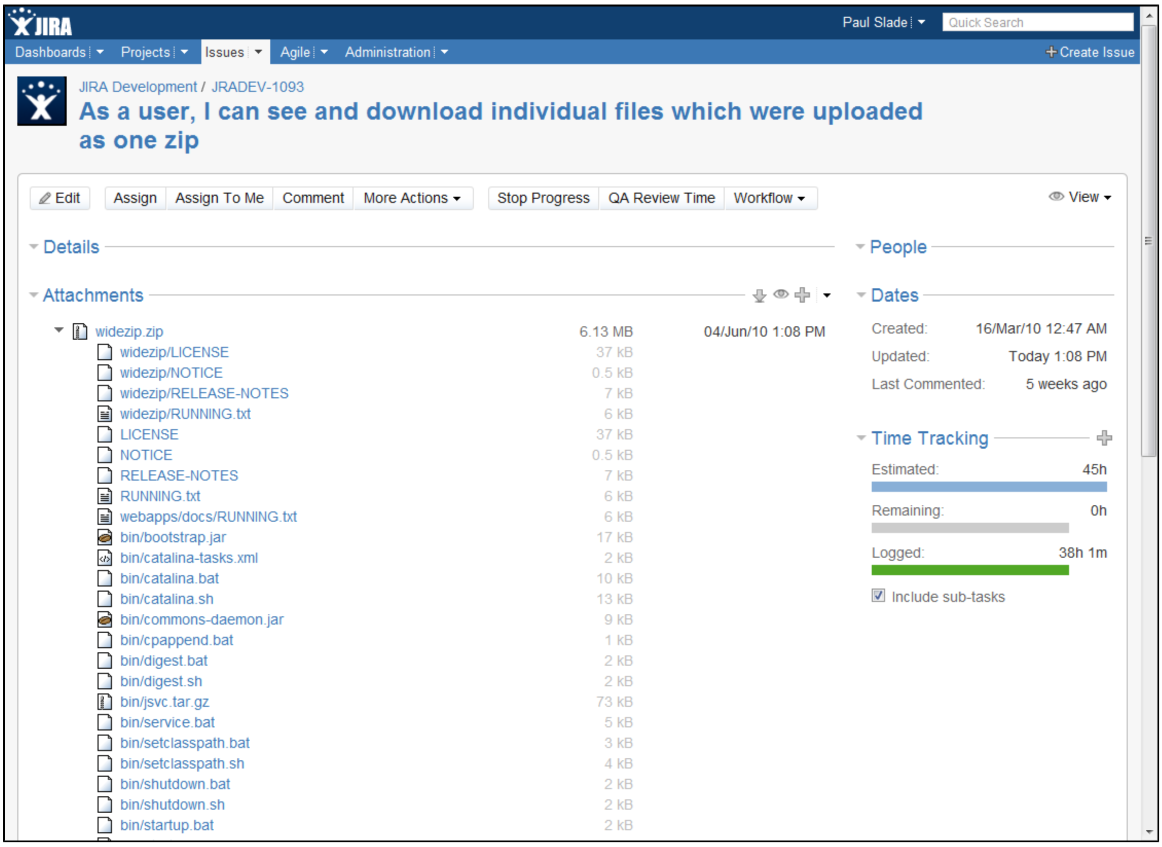

See Accessing ZIP-format File Contents for more information.

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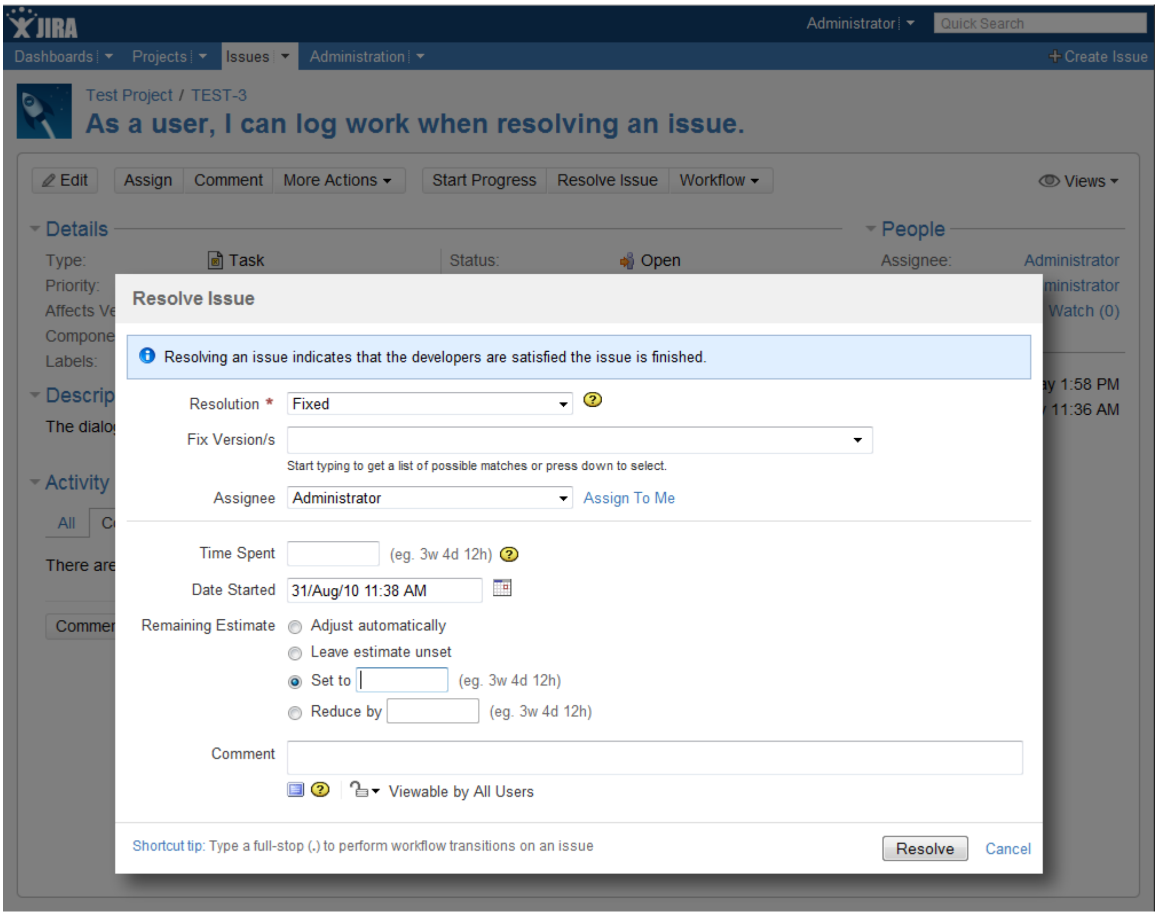

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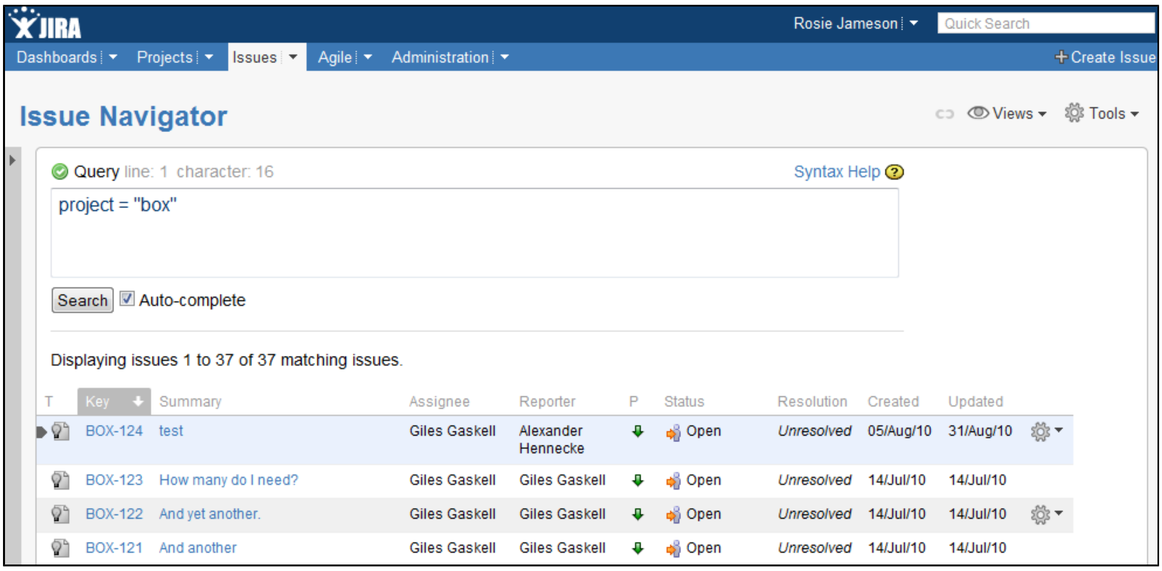

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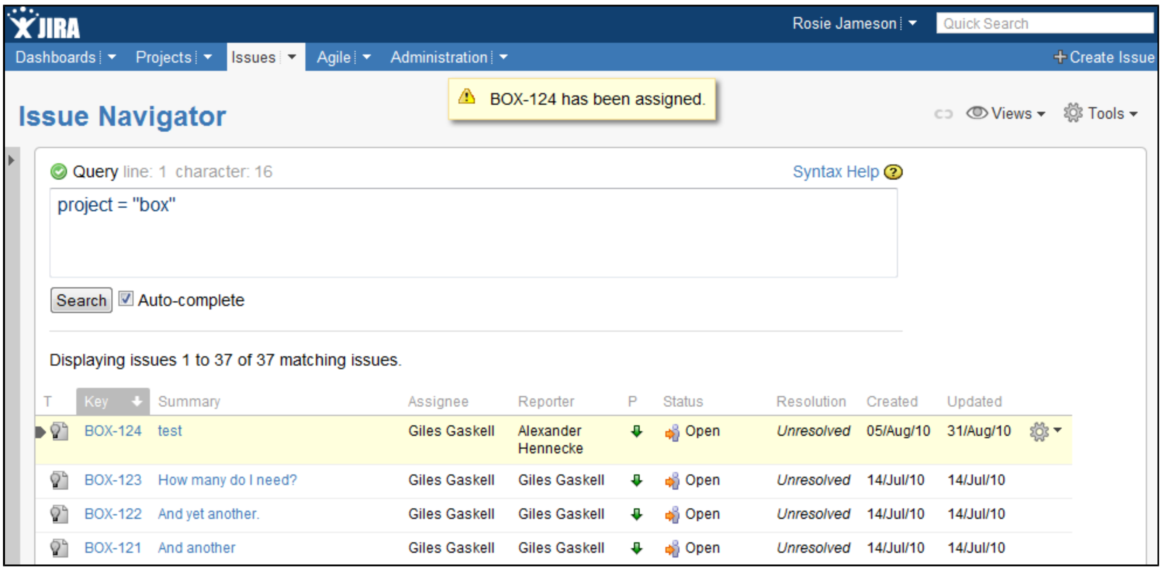

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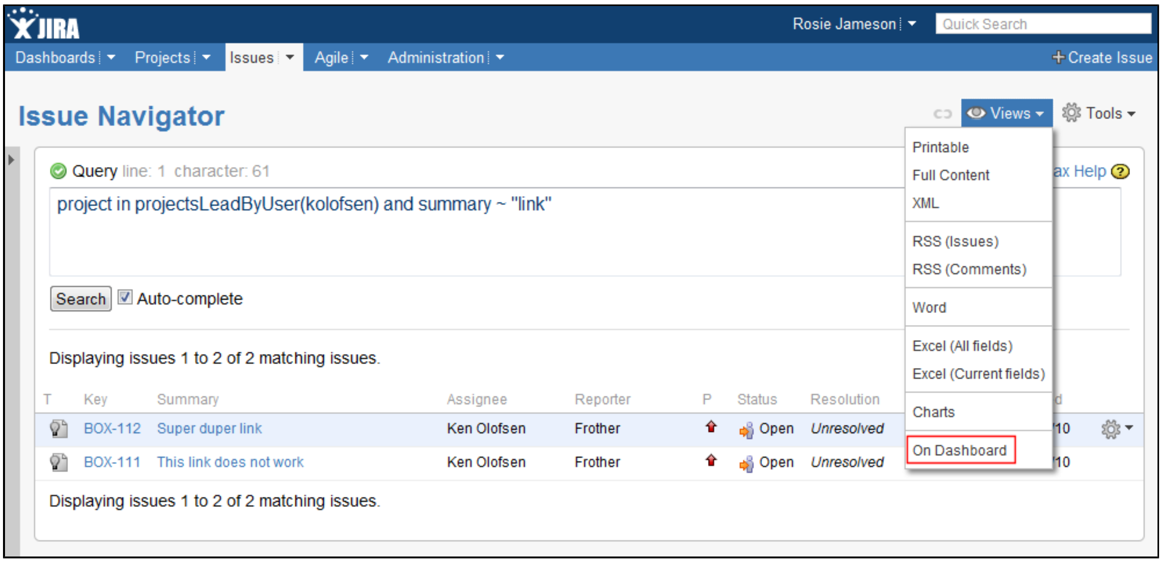

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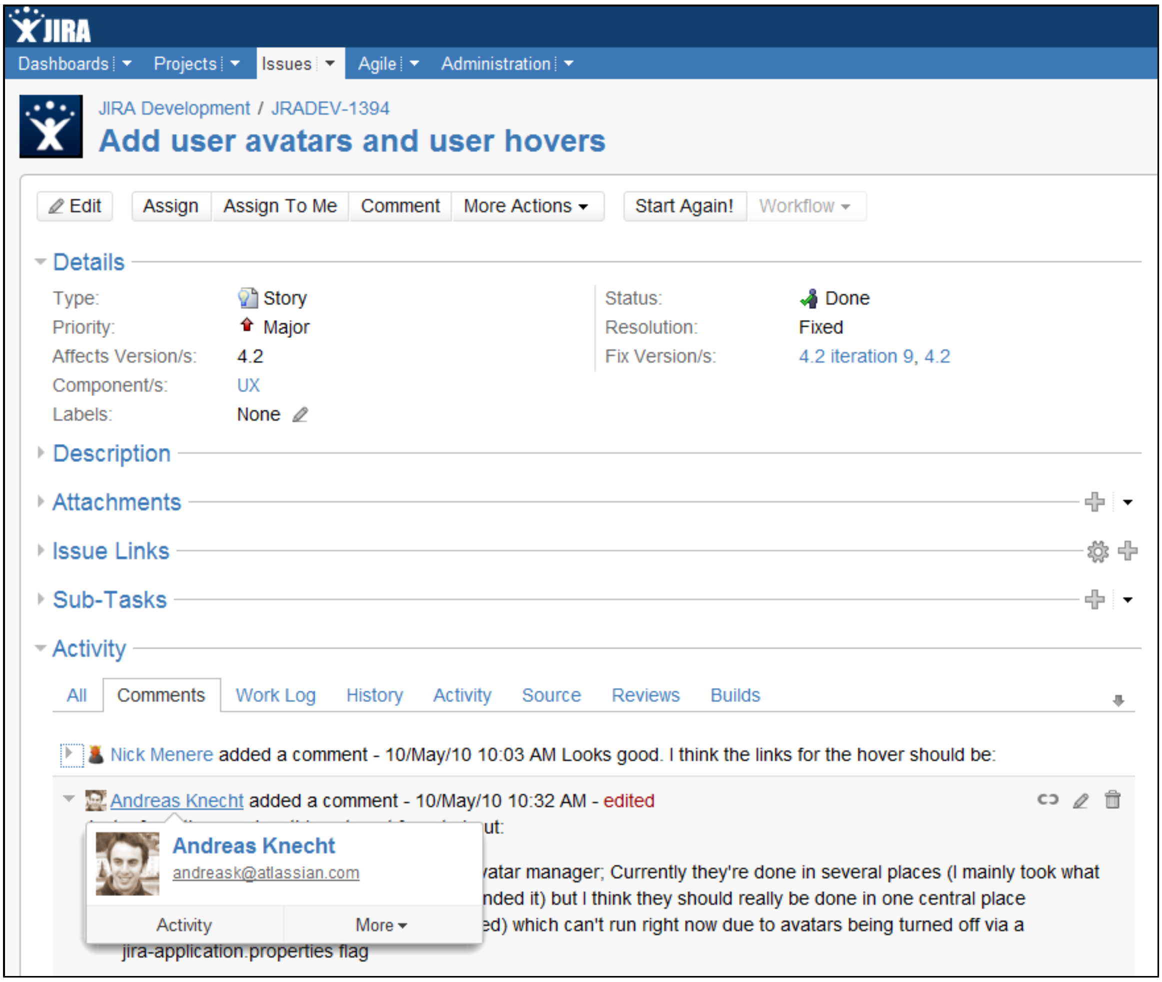

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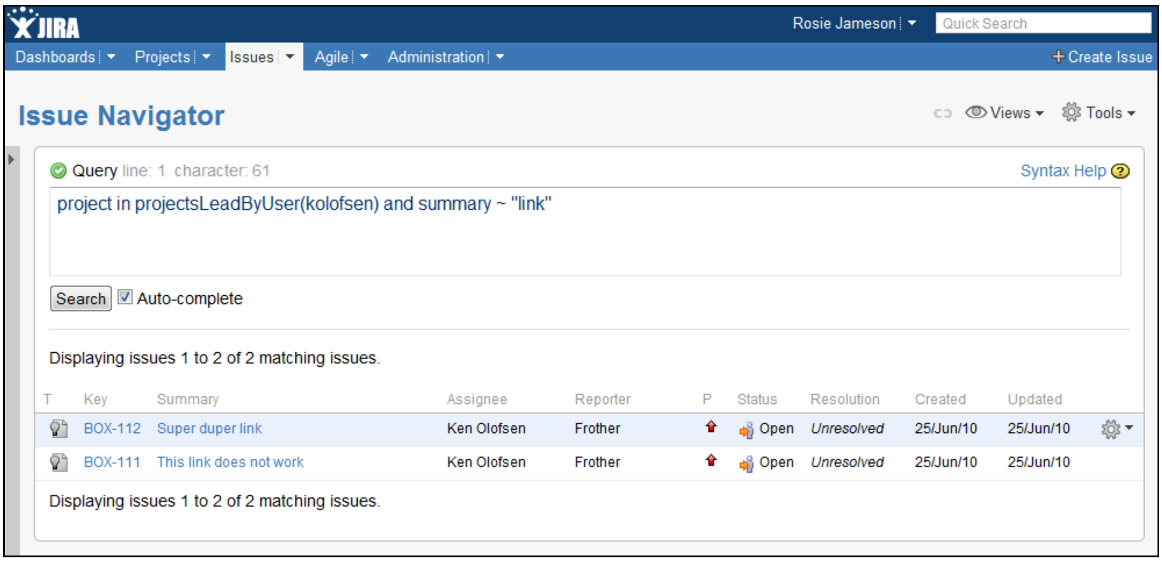

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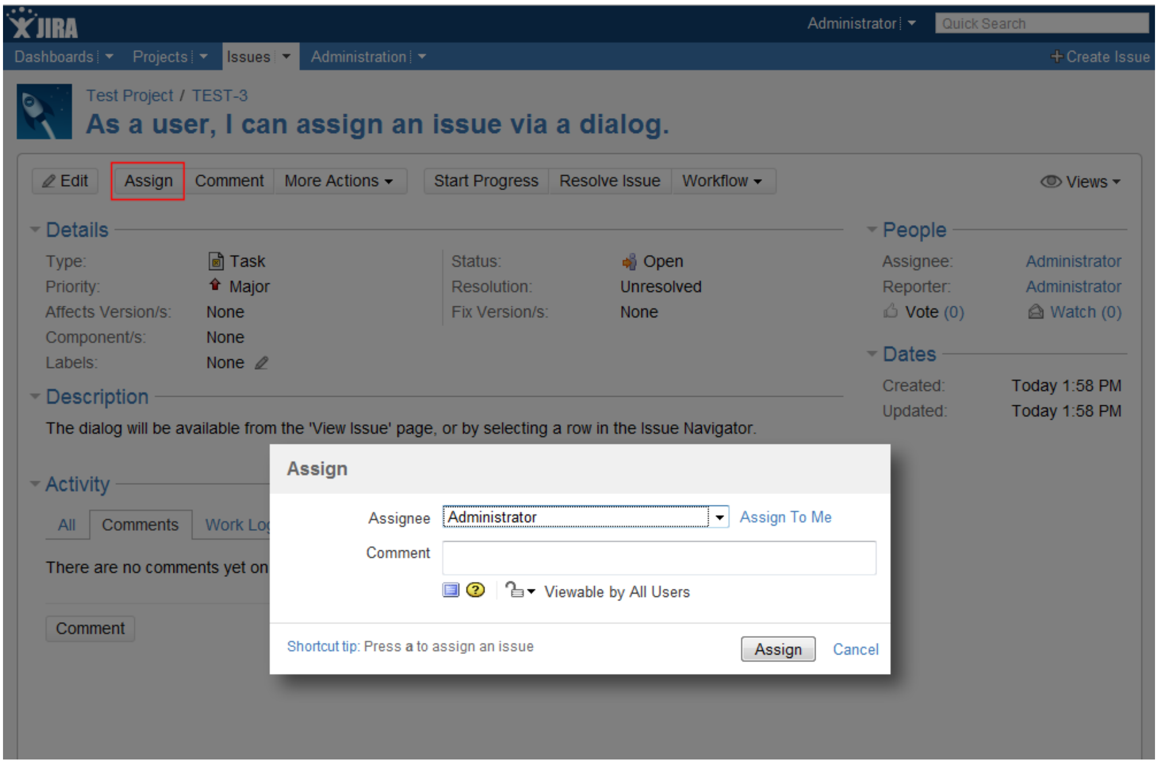

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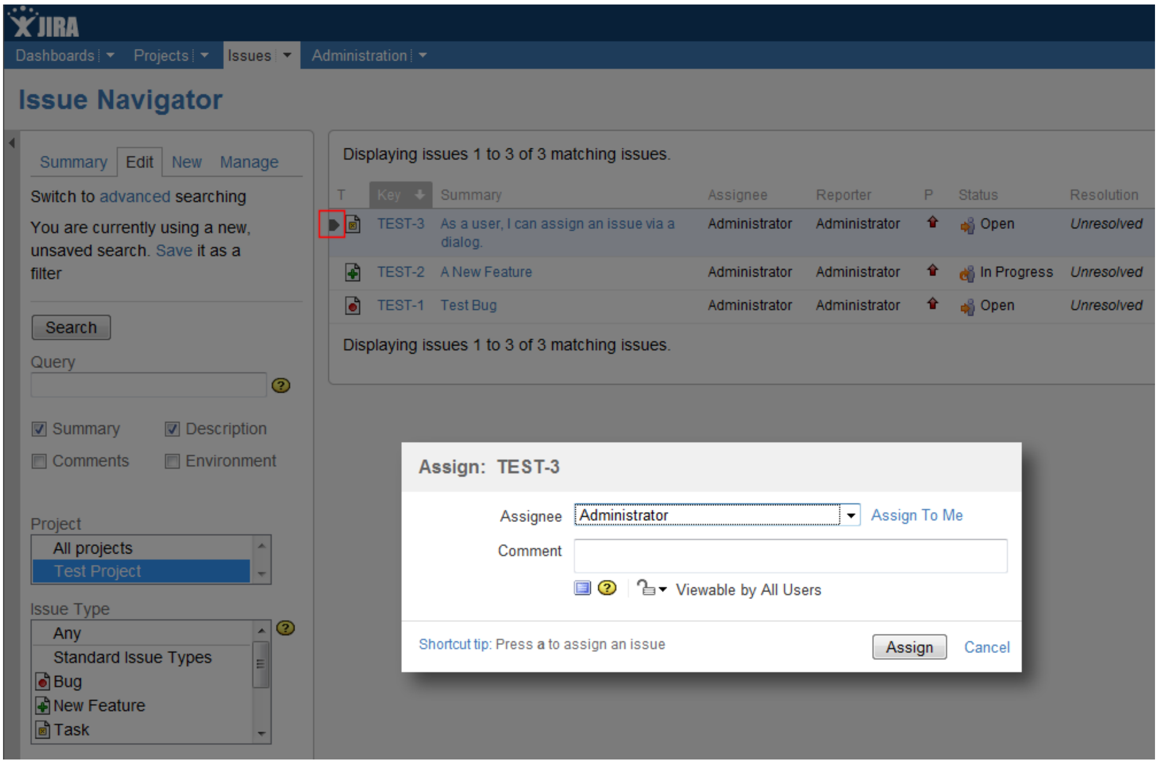

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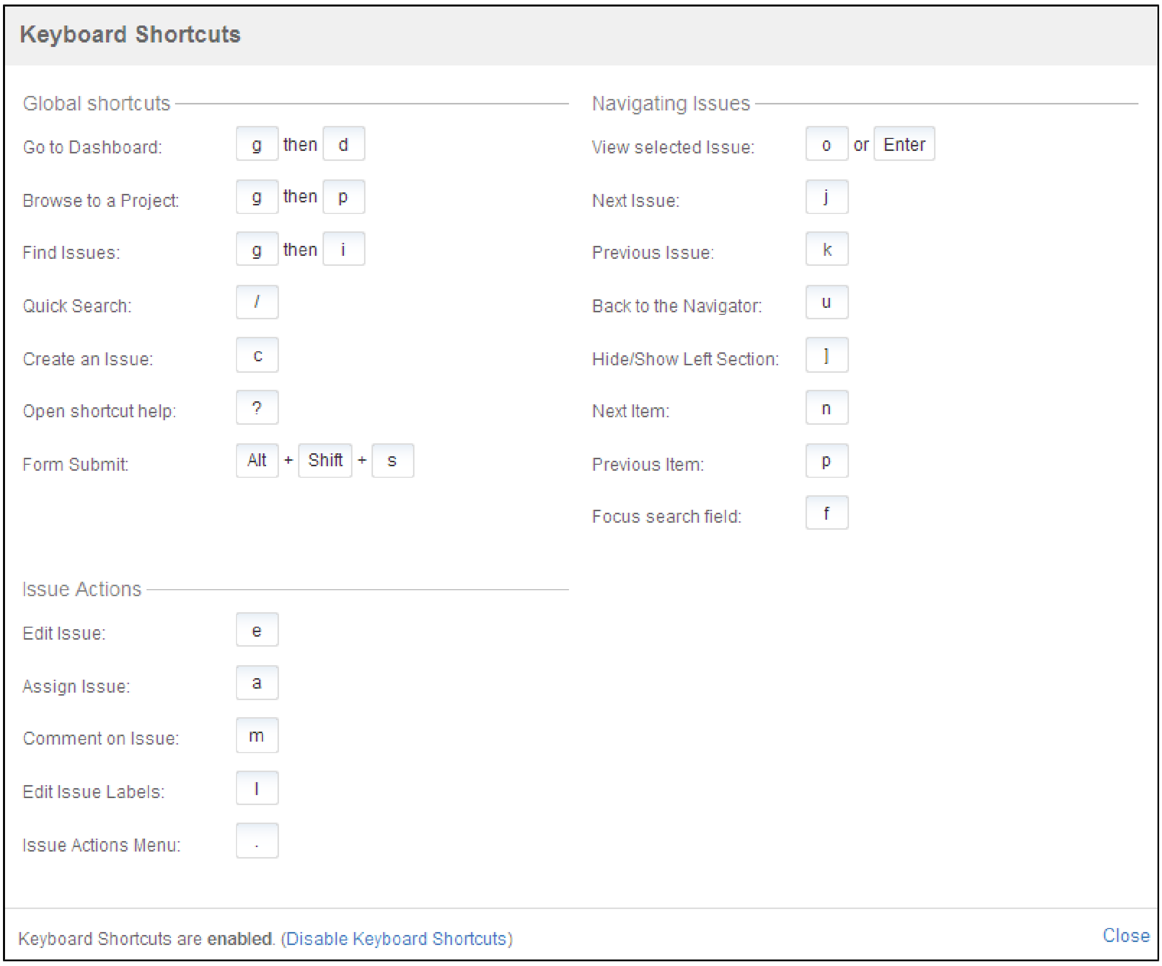

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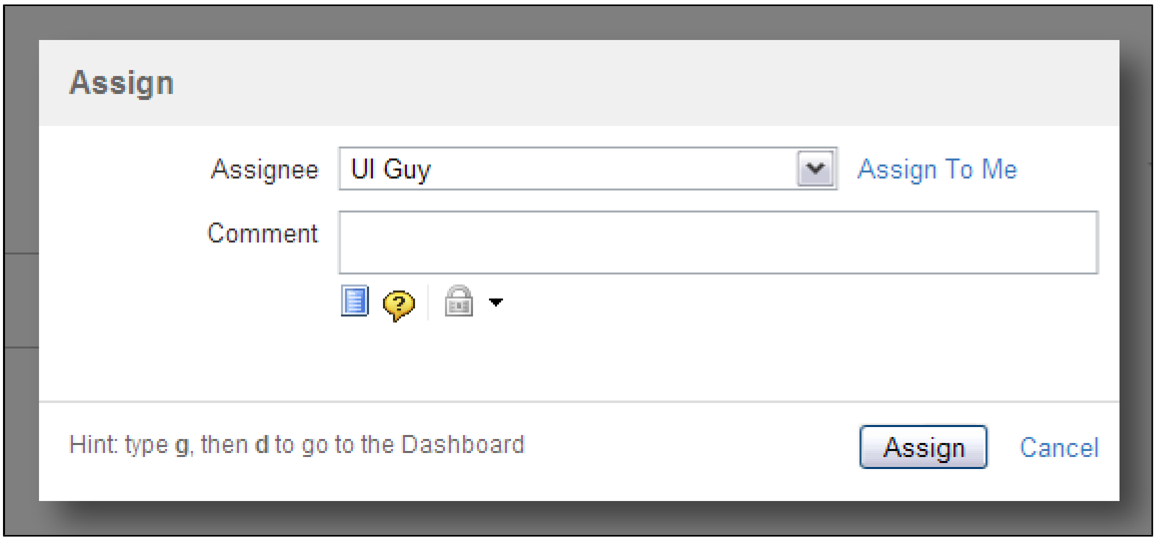

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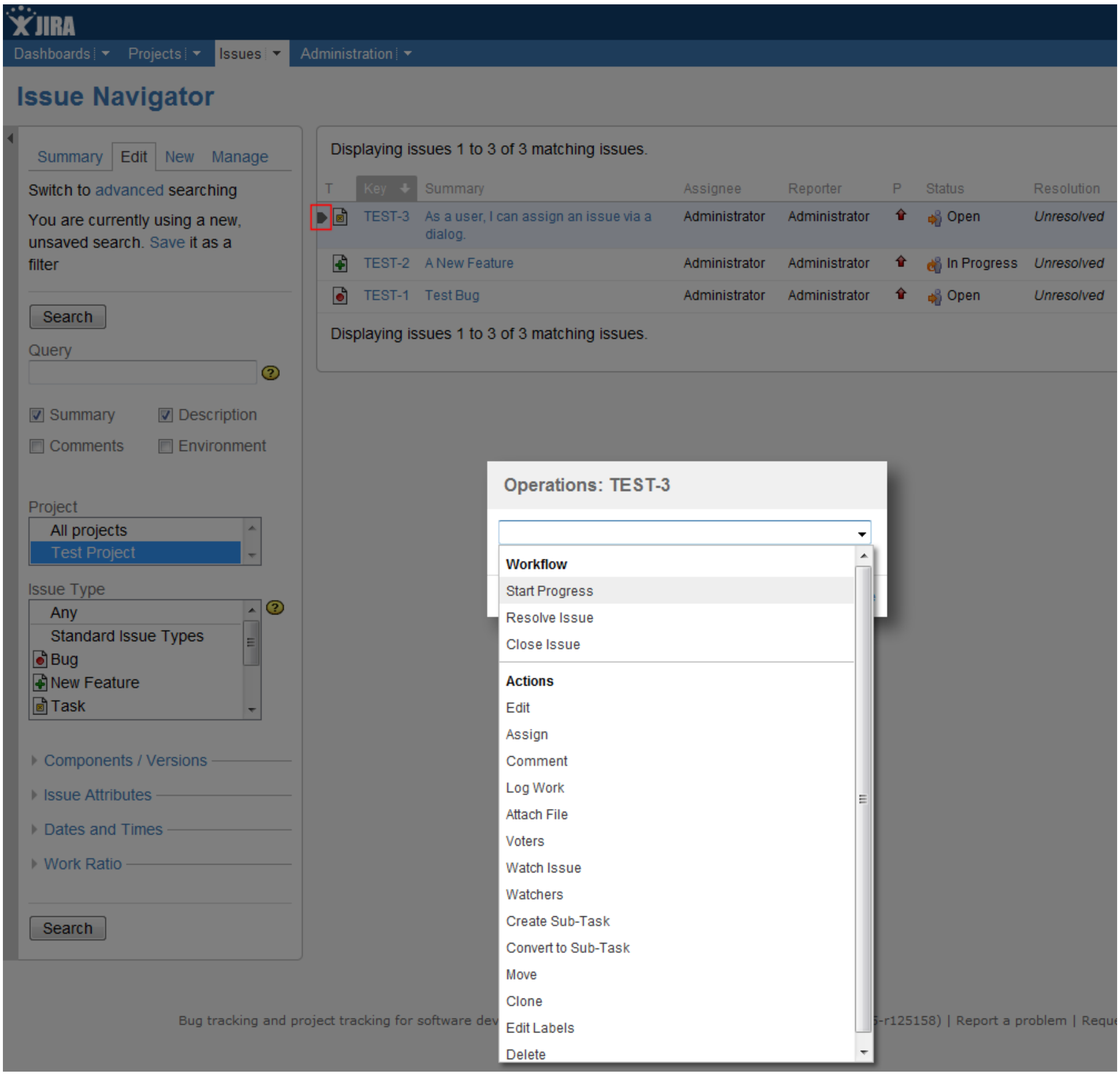

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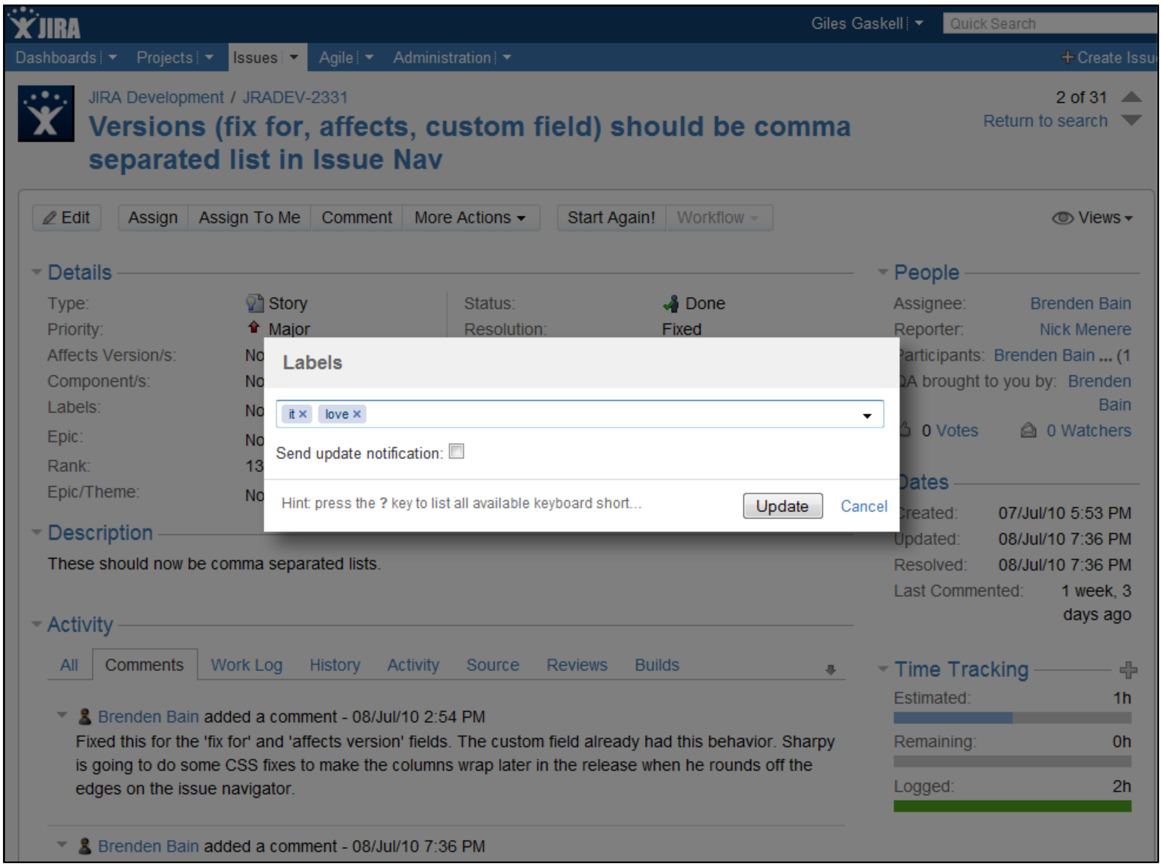

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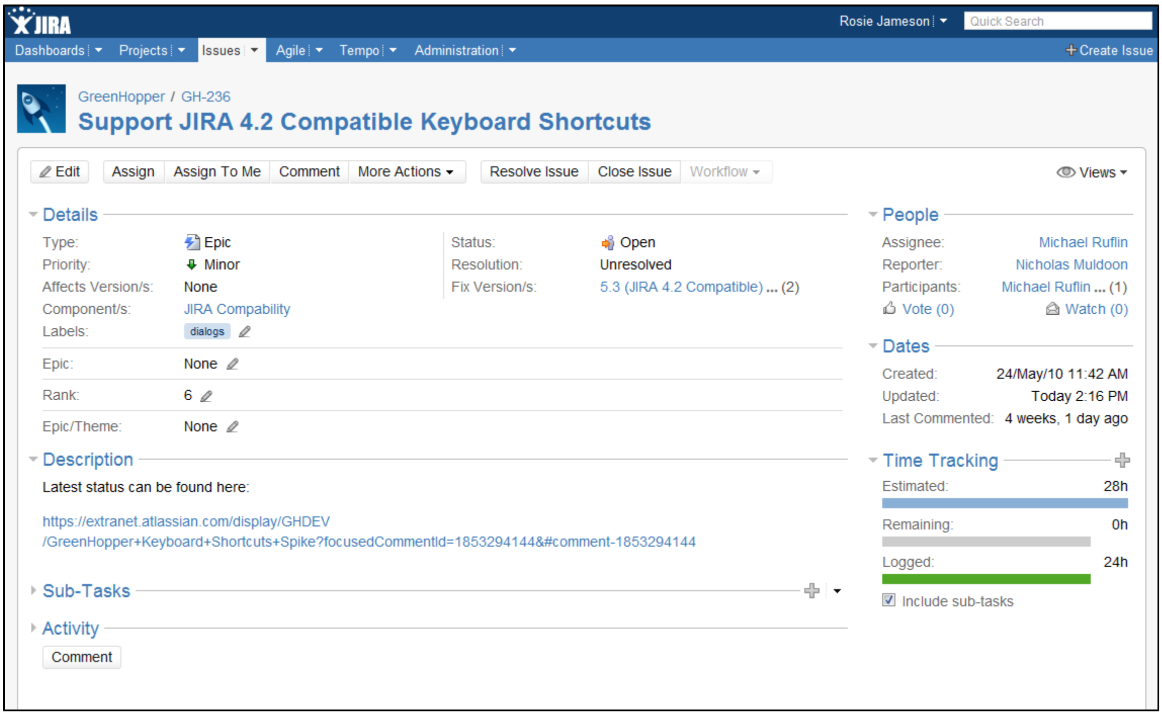

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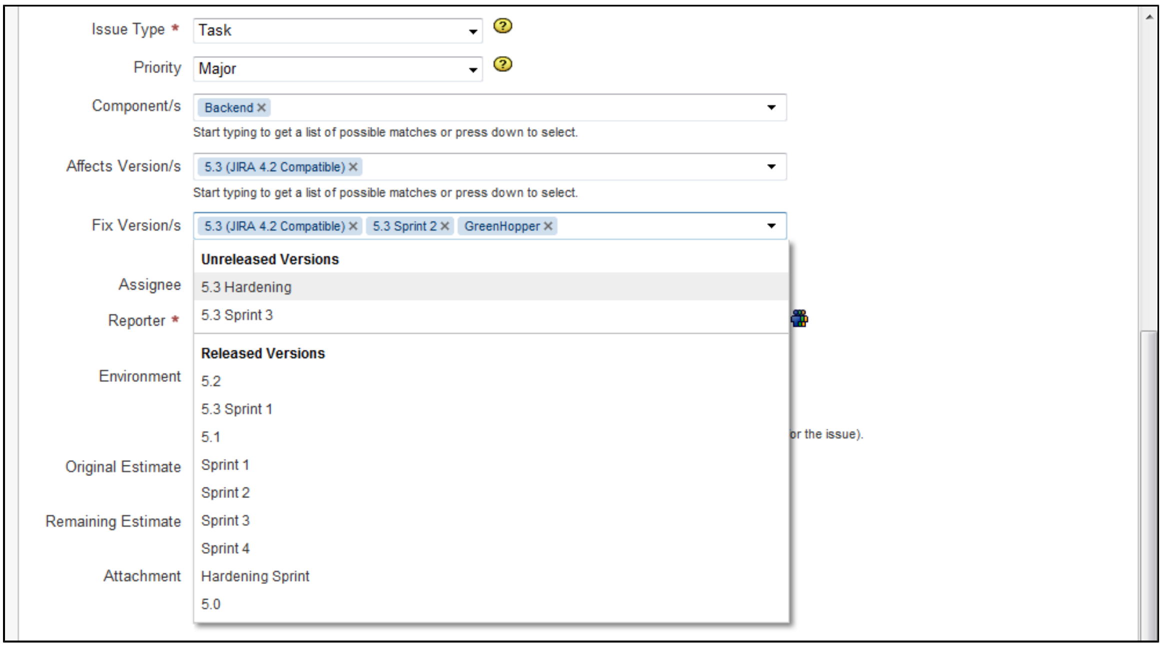

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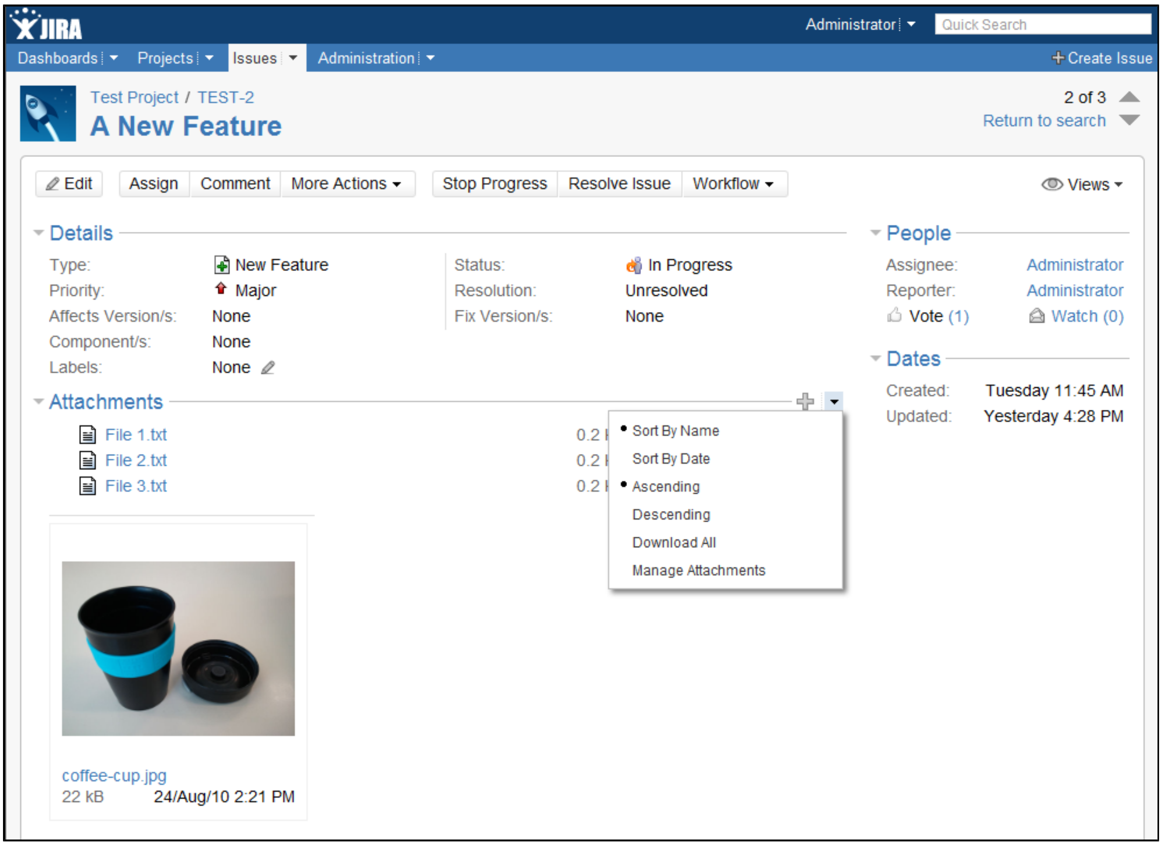

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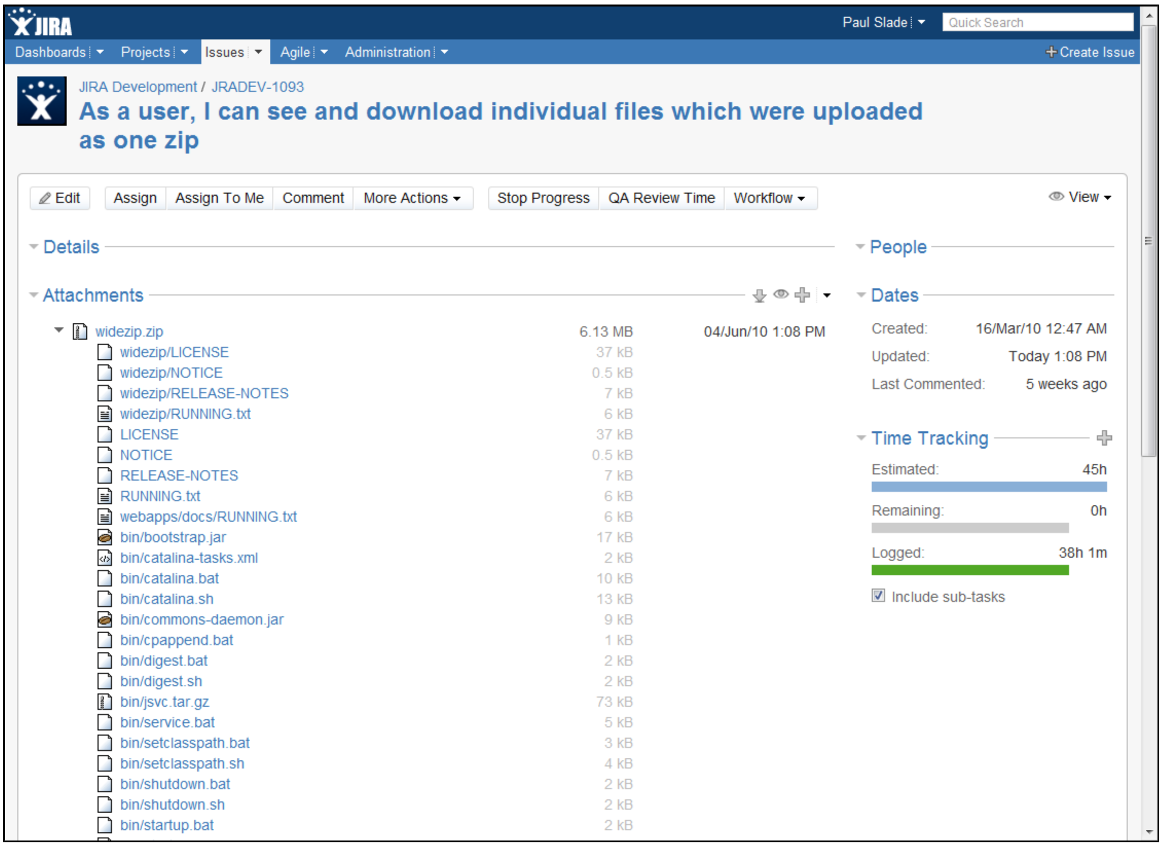

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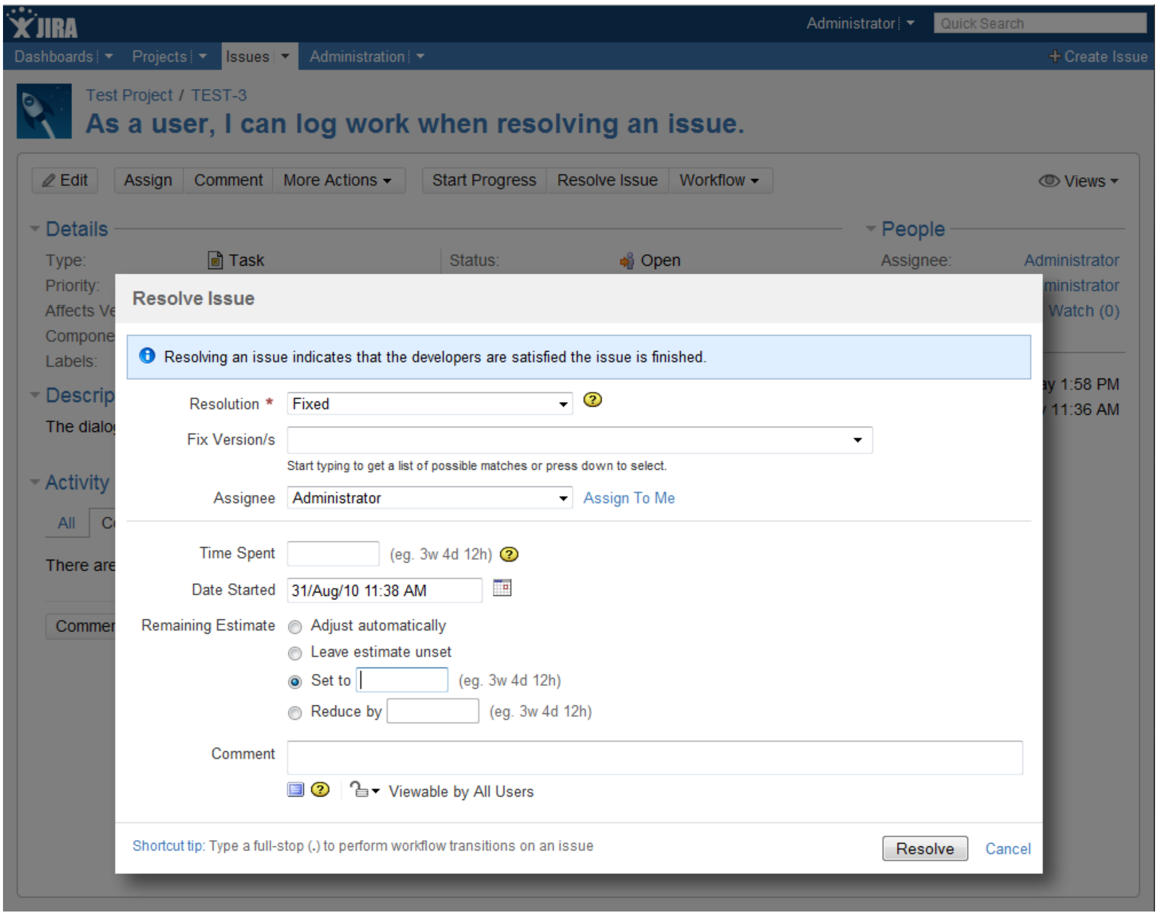

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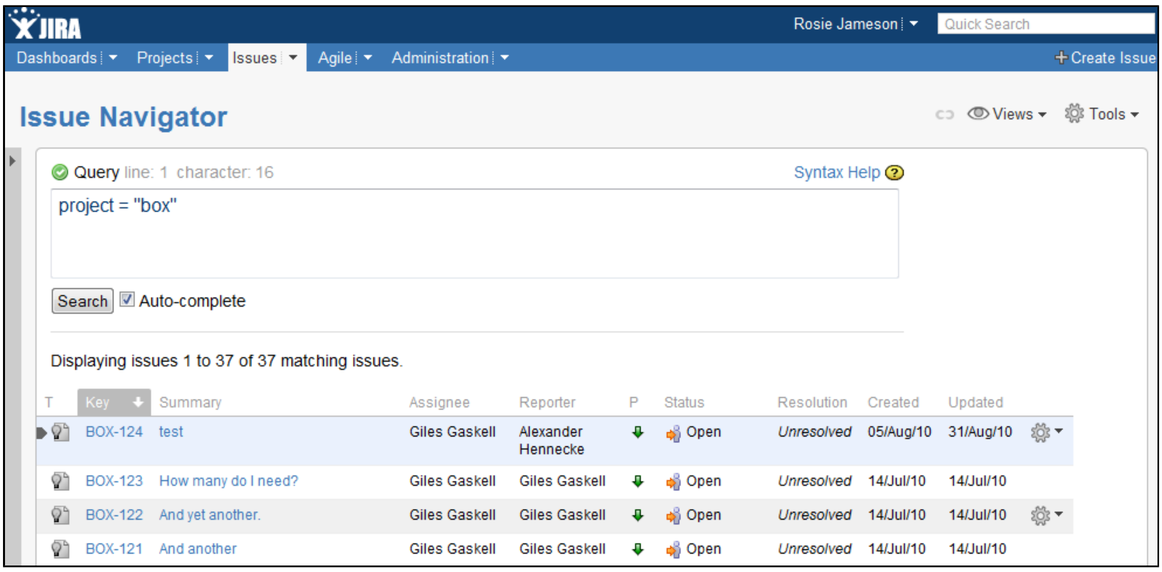

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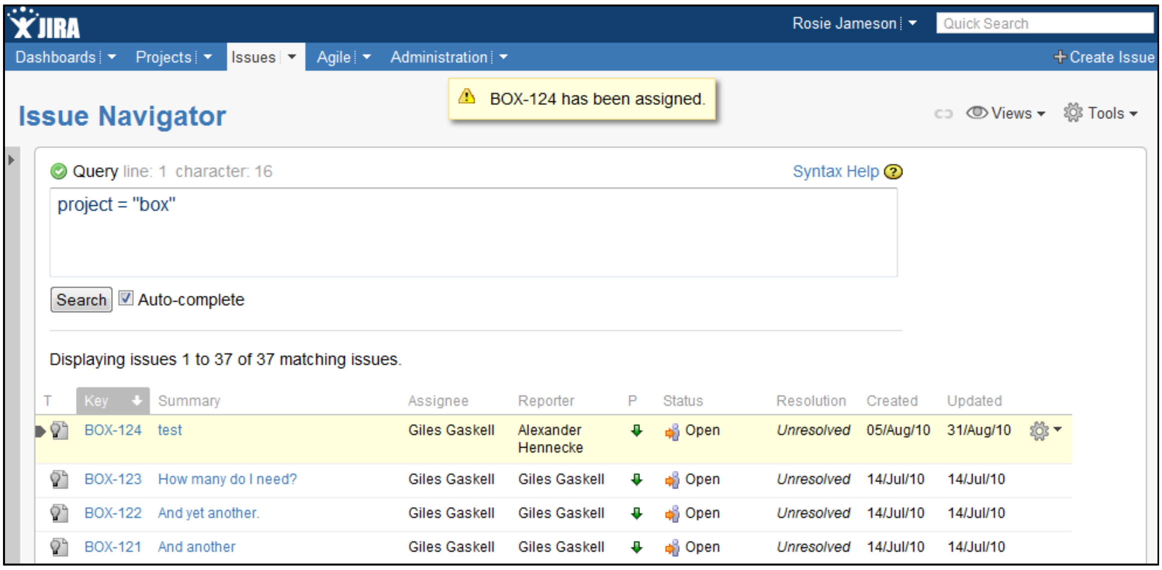

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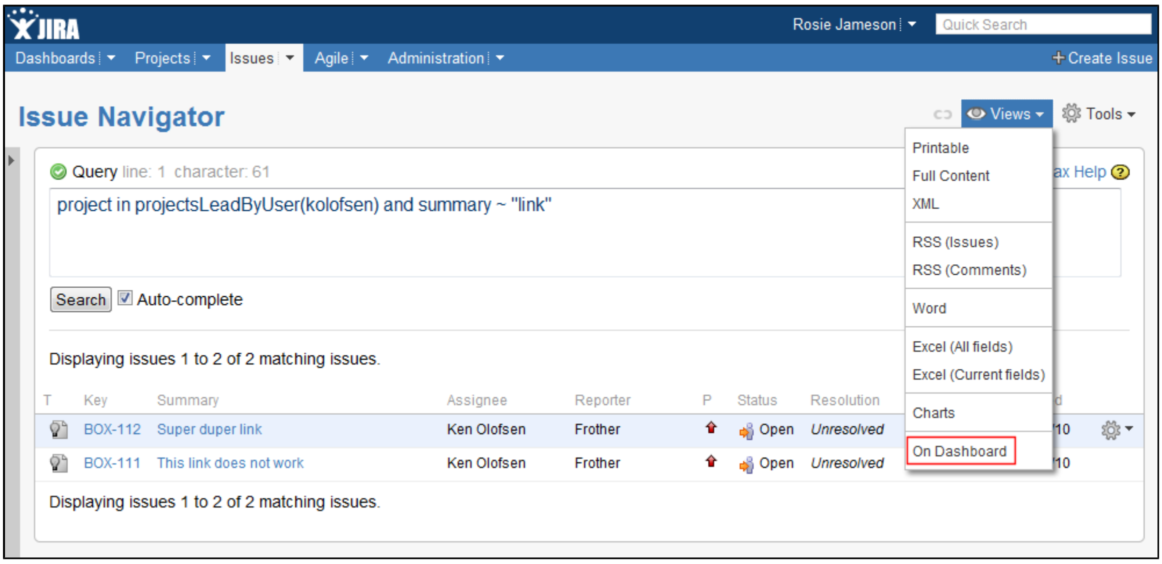

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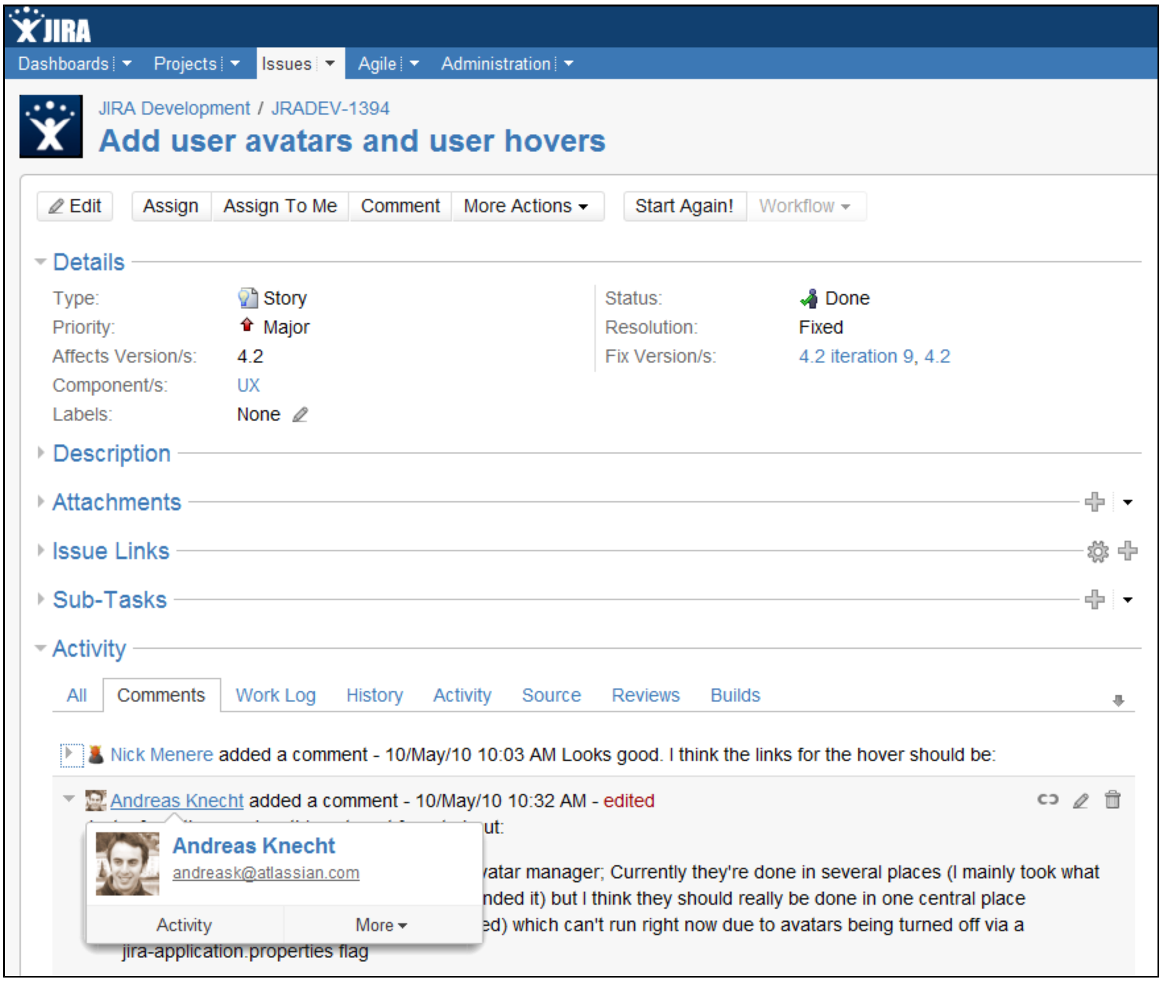

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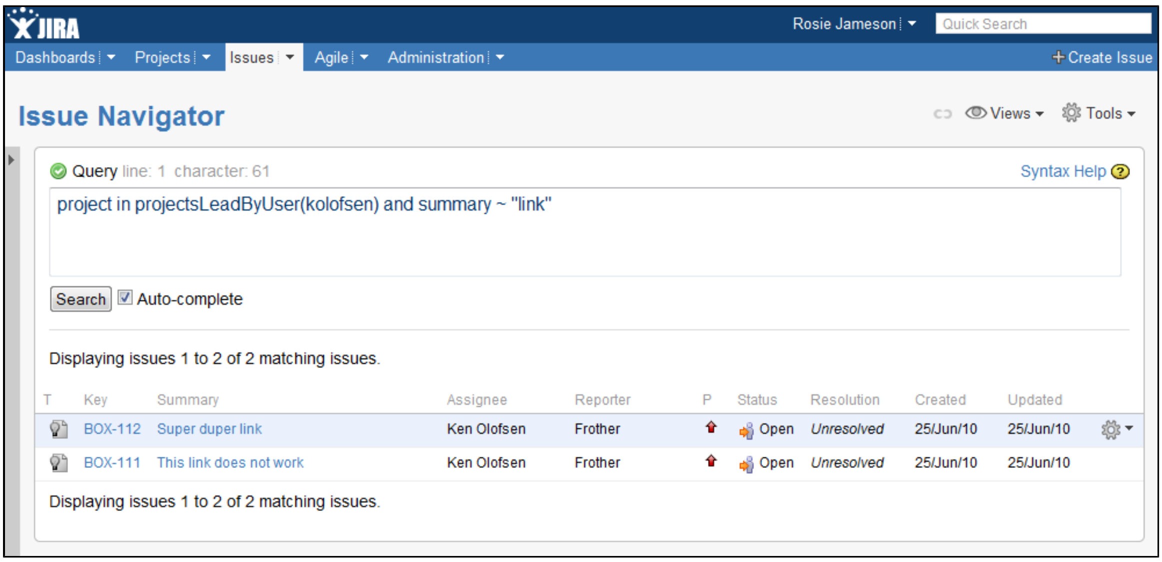

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JIRA 4.0 RC1 Release Notes

September 22, 2009

JIRA 4.0 Release Candidate 1 (RC1) is a public development release leading up to **JIRA 4.0**. For all production use and testing of JIRA, please use the latest official release.

A **release candidate** is a preliminary release leading up to the official release of a JIRA version. Release candidates are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use release candidates to test and fix their plugins in advance of an official release.

> It is not possible to upgrade JIRA 4.0 Beta 1, 2, 3, 4 or 5 data to RC1. The data needs to come from an already released JIRA version (for example, JIRA 3.13.5).

> The **only** plugins that are compatible with JIRA 4.0 RC1 are the latest JIRA Toolkit and the GreenHopper Beta 5 plugin. Do not install any other plugins.

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

Highlights of JIRA 4.0 RC1:

- Advanced Searching
- Dashboard Gadgets
- Activity Streams
- New-look "Browse Project"
- Charting Now Comes Standard
- New-look Header
- Issue Actions in the Issue Navigator
- Project Icons
- Default Unit for Time Tracking
- "History" is now permanent
- Engine Room
- Plus over 900 other fixes and improvements

Thank you for your interest in JIRA 4.0 RC1
Download JIRA 4.0 RC1

Installing/Upgrading to JIRA 4.0
JIRA 4.0 RC1 can be downloaded here. Before upgrading, please refer to the JIRA 4.0 Upgrade Guide. You will also need to go to my.atlassian.com and generate a "**JIRA 4 Evaluation**" license, if you haven't done so previously, as any existing 3.x license files will not work with 4.0 RC1.

Highlights of JIRA 4.0 RC1

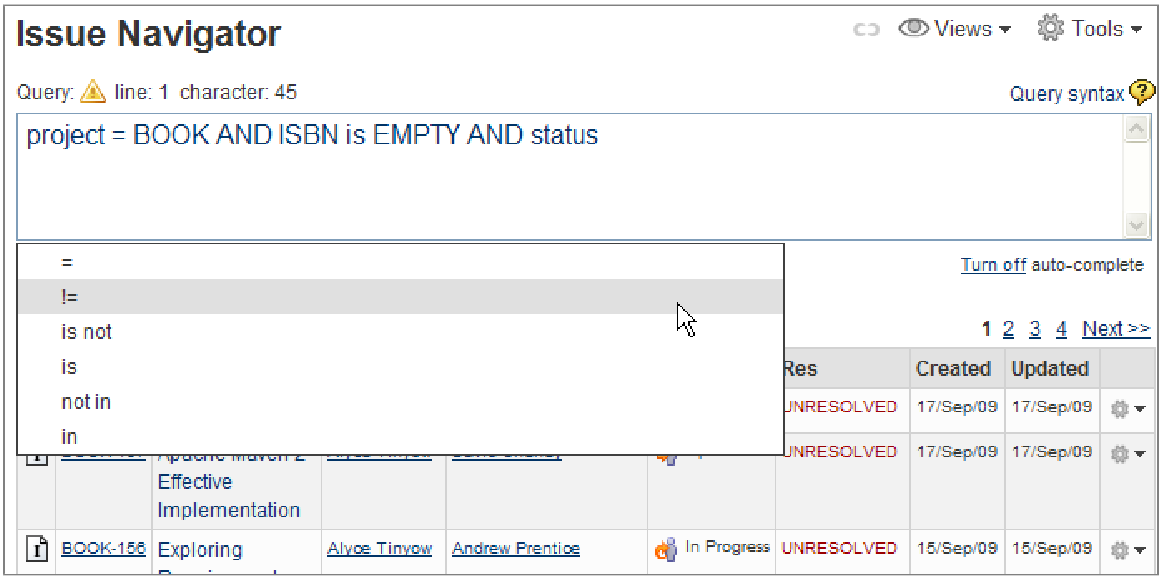
1

Advanced Searching

The power of search can never be understated, especially in a system like JIRA that sits at the centre of your development team.

JIRA Query Language (or JQL) brings search to whole new level!

JQL is a structured query language that provides support for logical operations, including AND, OR, NOT, NULL, EMPTY — even on custom fields:



Using JQL is simple even for those who don't know what "DBA" means. Just start typing and the auto-complete feature starts to suggest fields, operators and values for you to define your query.

You can now create more advanced filters such that you can stay up to date using RSS feeds & e-mail subscriptions, as well as see detailed statistics and charts, on issues that you are actually interested in.

^Top

Dashboard Gadgets

Whether you are tracking bugs or managing your entire development process, JIRA dashboards let you stay up to date on what matters most.

The new-look JIRA dashboard not only looks awesome, it now uses industry-standard 'gadgets'. So you can add external gadgets to your JIRA dashboard, as well as displaying JIRA gadgets in other places (such as iGoogle).

You can easily customise your dashboard by choosing a different layout, adding more gadgets, dragging the gadgets into different positions and changing the look of individual gadgets.

What's happened to your favourite JIRA portlets? Don't worry, every portlet that previously shipped with JIRA has been converted to a gadget.

If you are a plugin developer and have created your own portlets, see the instructions for converting your portlets to gadgets.

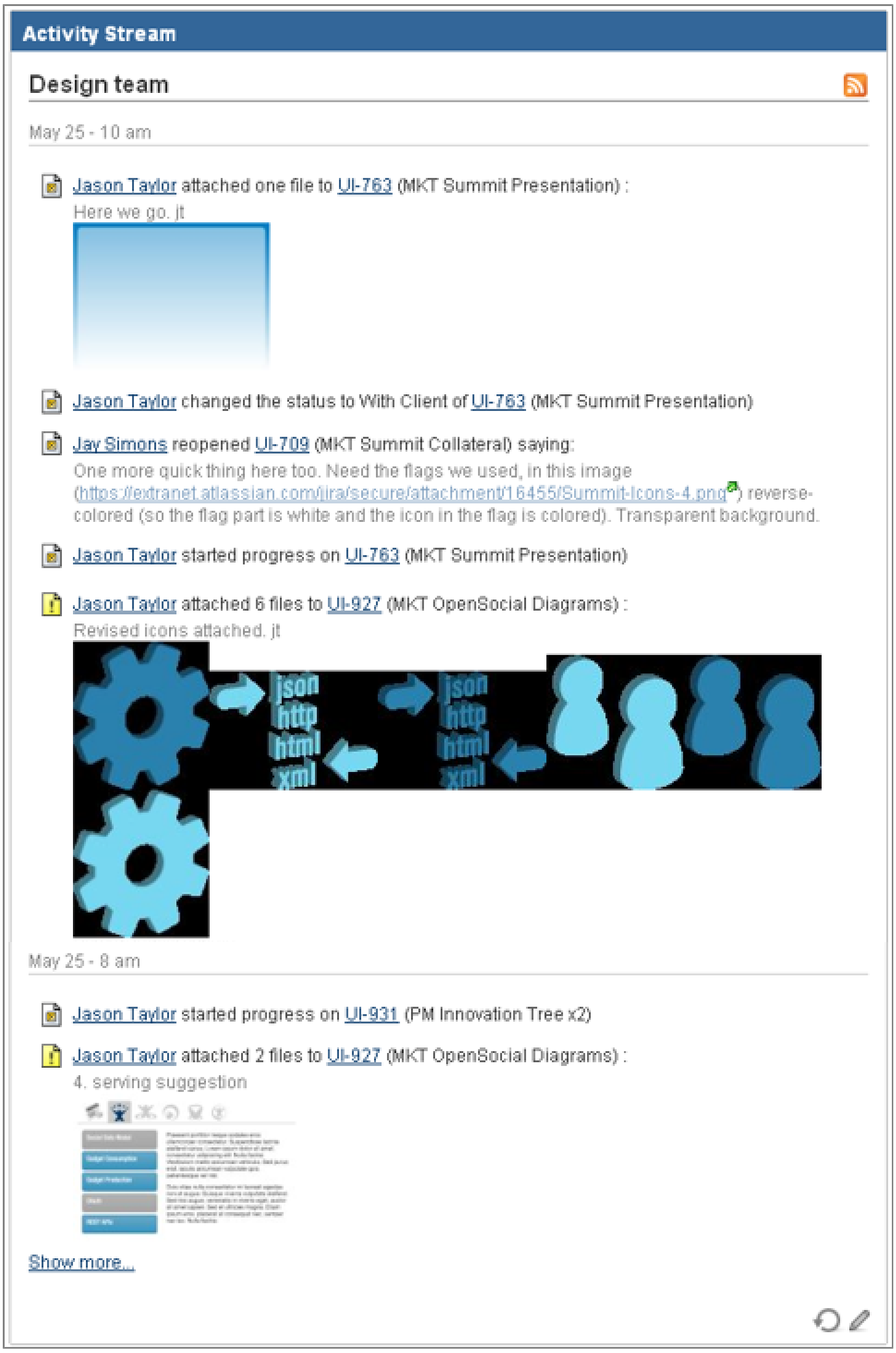
^Top

Activity Streams

The new activity stream allows you to stay up to date with exactly what is going on right this moment, what happened in that last hour or last few days.

Activity streams appear where you need them most — your user profile, project summary and view issue screens. You can even add an activity stream as a gadget on your dashboard.

The activity stream also provides an RSS feed, allowing you to subscribe to very specific RSS feeds of only the information that is most relevant to you.



See the documentation for more details.

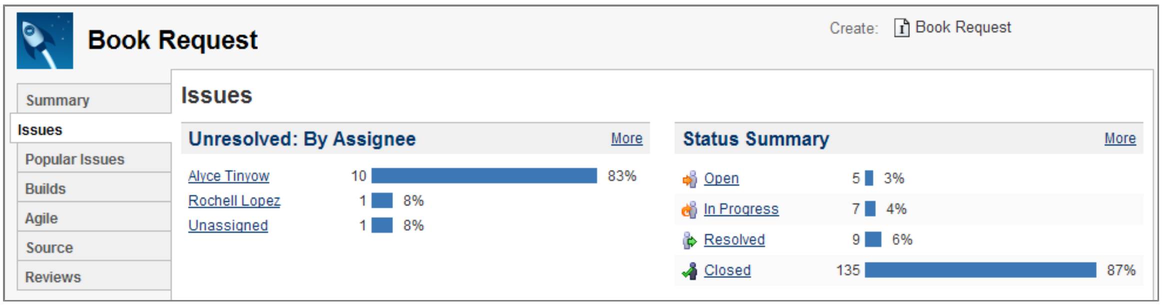
^Top

New-look "Browse Project"

Understanding the status of your projects just got a lot easier with the new browse project UI.

Quickly see what work is complete as well as outstanding. You can then drill down to specific issues you want to see.

Your Bamboo builds, FishEye source information and Crucible code reviews are only a click away, as well.



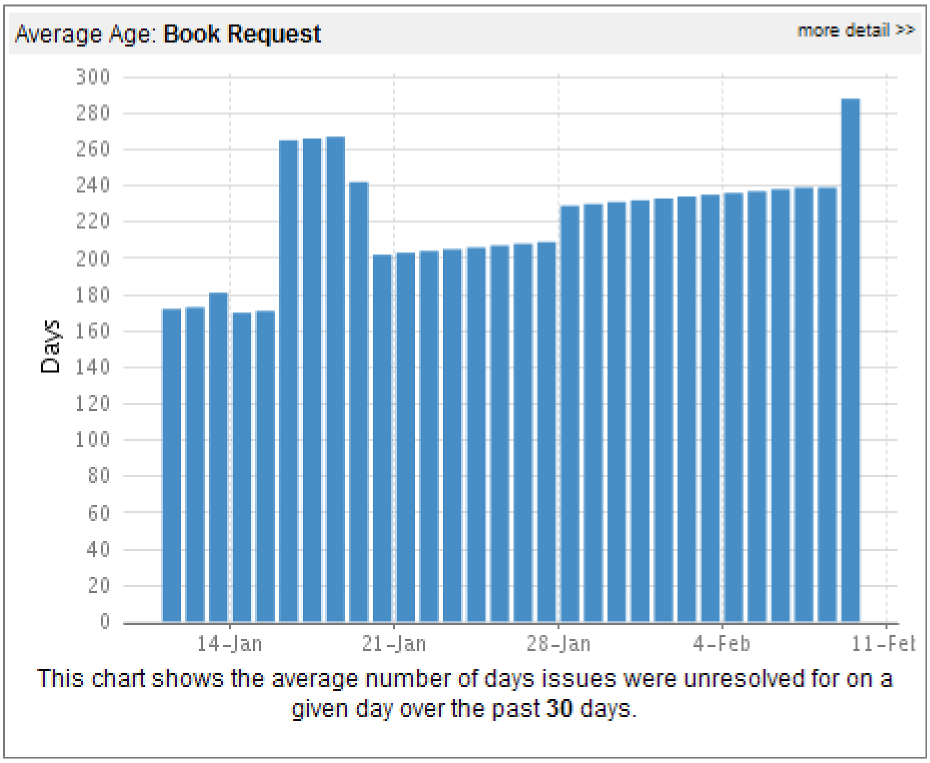
See the documentation for more about browsing projects, versions and components.
^Top

5

Charting Now Comes Standard

We've built charts into JIRA and given them a visual redesign as well.

- "Recently Created Issues" report and gadget — Shows the rate at which issues are being created.
- "Created vs Resolved Issues" report and gadget — Shows the number of issues created vs number of issues resolved over a given period of time.
- "Resolution Time" report and gadget — Shows the average time taken to resolve issues.
- "Pie Chart" report and gadget — Shows the search results from a specified issue filter (or project) in a pie-chart, based on a statistic of your choice.
- "Time Since Issues" report and gadget — Shows the number of issues for which your chosen date field (e.g. 'Created') was set on a given date.
- "Average Age" report and gadget — Shows the average age (in days) of unresolved issues, e.g.:



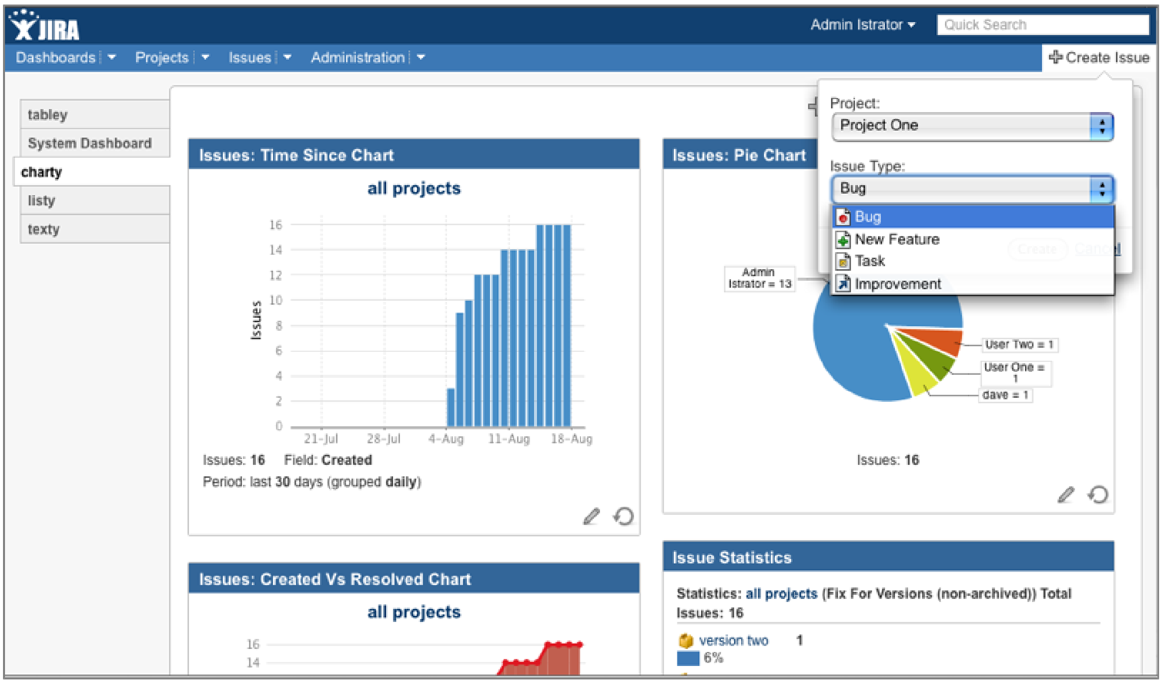
Also, the "Resolution Time" field from the Charting plugin is now part of JIRA, so every issue now automatically has its resolution time recorded.

^Top

6

New-look Header

The new-look JIRA header gives you quick access to all of the most commonly-used functions. Creating an issue just got even faster!

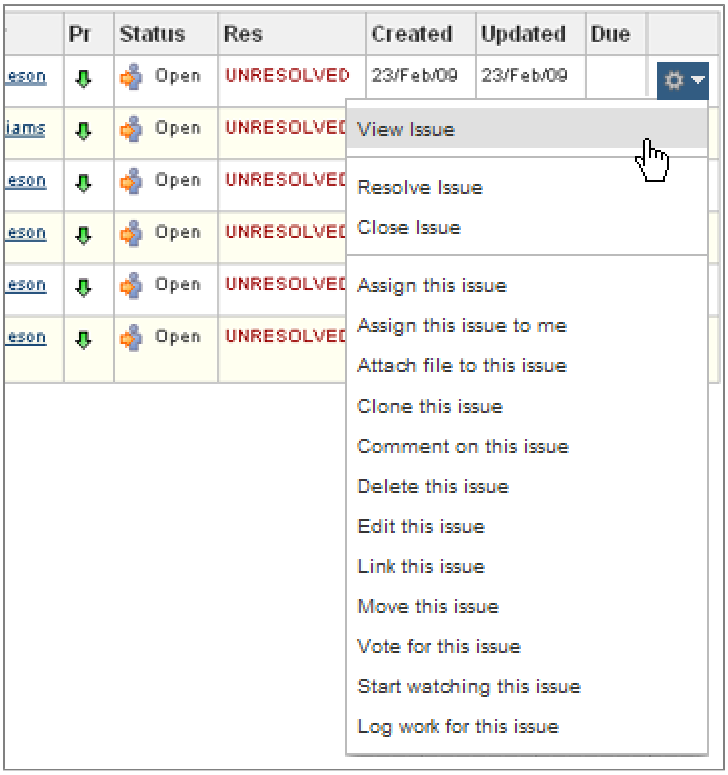


Click to zoom in:

If you prefer keystrokes rather than mouse-clicks, you'll be pleased to know that you can use your keyboard to navigate the new header menus.
^Top

Issue Actions in the Issue Navigator

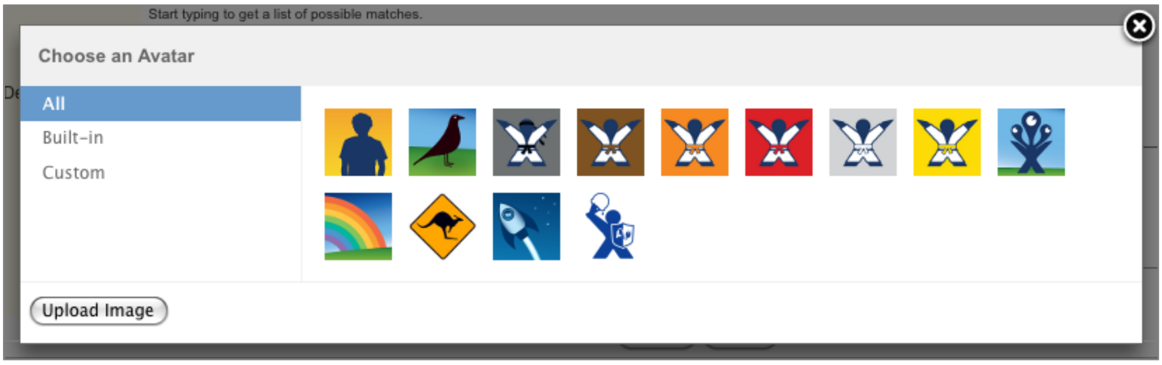
By popular request, issues are now actionable directly from the Issue Navigator:



The "Actions" menu is also available for the list of sub-tasks within an issue.
^Top

Project Icons

You can now give your project a visual identity, thanks to the introduction of project icons ('avatars'):



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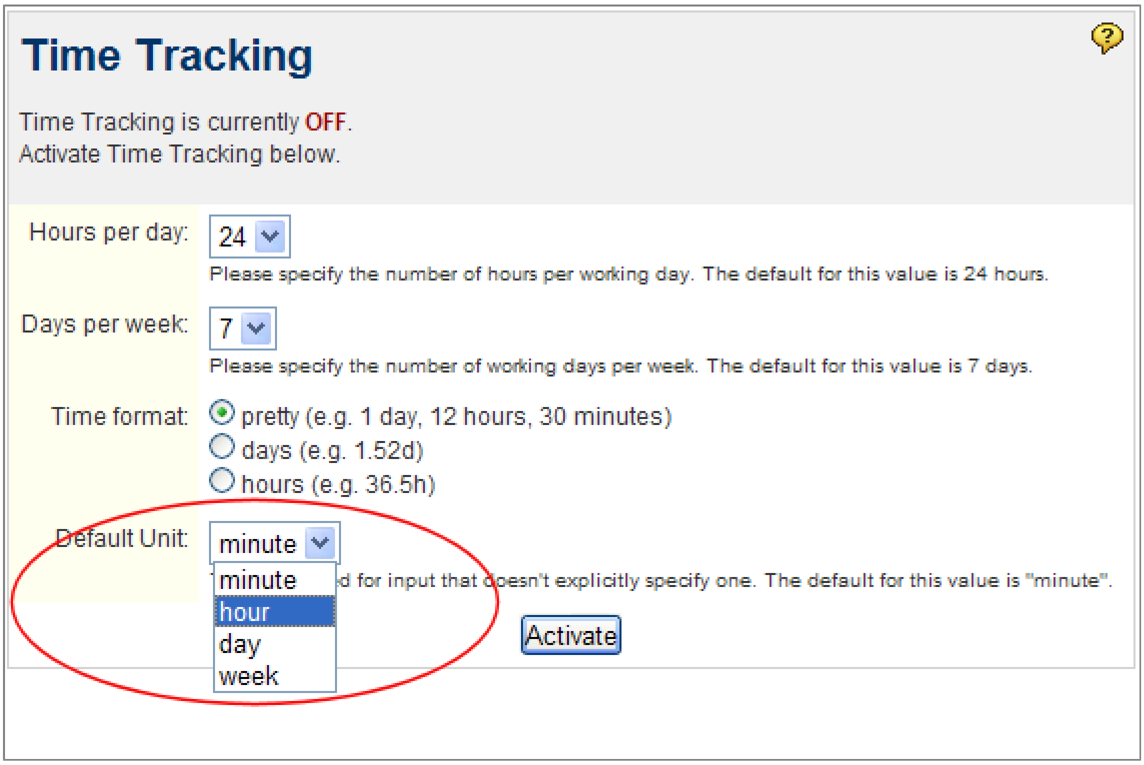
Default Unit for Time Tracking

You can now specify your preferred **Default Unit** (minutes/hours/days/weeks) for your JIRA system. This will be applied whenever users log work on an issue without specifying a unit.

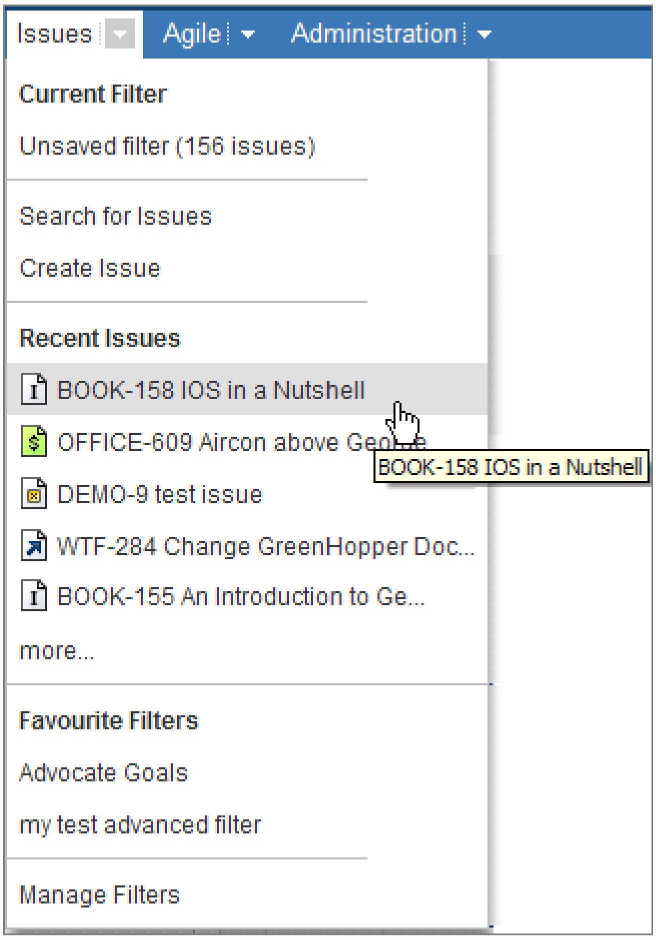


^Top

10

"History" is now permanent

Your list of recently-viewed issues is now stored in JIRA's database — so it's available after you log out and back in, even if you use a different machine.



^Top

11

Engine Room

Beyond the 'Back' Button

When navigating away from a page where you have modified data, you will be prompted to see if you would like to save the data or discard your changes (see JRA-14911).

Index Queue

Index updates are now put in a queue. So even if the update takes longer than 30 seconds, the operation remains on the queue and is not lost. (See JRA-14220.)

^Top

12

Plus over 900 other fixes and improvements

Click here for full list.

JIRA Issues (200 issues)

Key	Type	Summary	Priority	Status
JRA-1538		Filter on Versions and Components across Projects		Resolved
JRA-1579		Create a portlet for the recent history		Resolved

JRA-2033		Add an RSS feed query for comments to individual issues	Resolved
JRA-2681		Extend filter capablities by adding negative clauses	Resolved
JRA-2810		Recently viewed issues	Resolved
JRA-2916		Allow Previous version searching	Resolved
JRA-2925		Can't filter by Security Level	Resolved
JRA-3206		View issues without an estimate	Resolved
JRA-3624		released/unreleased version filter	Resolved
JRA-4059		Record last login time for a user	Resolved
JRA-5383		My Votes and My Watches as filters	Resolved
JRA-7551		Provide capability to find issues by resolution date	Resolved
JRA-7626		Build search queries remotely	Resolved
JRA-7772		Ability to create advanced queries to search across all data	Resolved
JRA-8159		Add ability to issue navigator to find all issues linked to x issue - with option to constrain by link type	Resolved
JRA-8527		Put task actions directly in filter output	Resolved
JRA-8606		Need a way to find watched issues	Resolved
JRA-8852		Sort filter results by non-visible field	Resolved
JRA-8973		RSS of Project Changes	Resolved
JRA-9551		Search for all Sub-Tasks of one given issue	Resolved
JRA-9651		User Activity Log	Resolved
JRA-10245		Ability to filter/view Issues upon "Versions" across multiple "Projects"	Resolved
JRA-10443		"Not Assigned to User" criteria in filters	Resolved
JRA-10603		MultipleSelect searcher for cascading selection field	Resolved
JRA-12921		Ability to export Watched Issues to excel	Resolved
JRA-14613		Each project can have its own logo	Resolved
JRA-14616		Ability to query for issues that you are not watching	Resolved
JRA-14983		Fetch only updated or changed issues	Resolved
JRA-15575		Test and confim JIRA is compatible with Microsoft SQL Server 2008	Resolved

JRA-16067		Provide field definition in XML issue view URL to customize XML view	Resolved
JRA-16120		Dashboard rewrite	Resolved
JRA-16509		Check for javascript enabled in browser	Resolved
JRA-16805		Convert legacy portlets to Gadgets	Resolved
JRA-16807		Convert Intro Portlet	Resolved
JRA-16808		Convert Quicklinks portlet	Resolved
JRA-16809		Convert Favourite Fitlers	Resolved
JRA-16811		Convert Pie Chart Portlet	Resolved
JRA-16903		Convert CreatedVsResolved Chart Portlet	Resolved
JRA-16905		Convert Average Age Chart	Resolved
JRA-16914		Convert Recently Created Portlet	Resolved
JRA-16916		Convert Time Since Chart	Resolved
JRA-16920		Add filter option for subtasks of a particular issue	Resolved
JRA-16926		Implement OAuth SPI in JIRA	Resolved
JRA-16931		Convert Saved Filter Portlet	Resolved
JRA-16978		Option "Number to Show" in Filter Statistics Portlet to limit numer of rows displayed	Resolved
JRA-17090		Convert Admin Portlet to gadget	Resolved
JRA-17094		Convert Bugzilla portlet	Resolved
JRA-17095		Convert Project/Projects/Project Table portlets into a gadget	Resolved
JRA-17096		Convert Project / Filter stats Portlet to gadget	Resolved
JRA-17101		Convert TwoDimensionalStatsPortlet to gadgets	Resolved
JRA-17112		Convert Roadmap Portlet to gadgets	Resolved
JRA-17133		Convert Resolution Time Chart to gadgets	Resolved
JRA-17140		Convert Assign To Me portlet to gadget	Resolved
JRA-17141		Convert Voted For Portlet to gadget	Resolved
JRA-17142		Convert Watching Portlet to gadget	Resolved
JRA-17143		Convert In-progress portlet to gadget	Resolved

JRA-17182	Allow REST plugins to be decorated	Resolved
JRA-17337	New Header for JIRA 4.0	Resolved
JRA-17355	Need provision to search multiple group	Resolved
JRA-17763	JQL: It will great if user can use E-mail ID's for searching in Assignee and reporter fields	Resolved
JRA-923	Allow filter by "No Fix For" across projects	Resolved
JRA-1560	Better support for logical operation (and/or/not) type of filters.	Resolved
JRA-1635	"not" qualifier on fields for searching	Resolved
JRA-1642	Create home directory instead of index & attachment directory	Resolved
JRA-1800	Improve the UI for browse project	Resolved
JRA-1844	Display attachment comments associated with their attachments	Resolved
JRA-1983	Enable filtering on "older than 1 month"	Resolved
JRA-1994	Ability to filter on time tracking related fields	Resolved
JRA-2469	It would be really nice to specficy several Asignee options in filters	Resolved
JRA-2607	Would like to create a filter also with OR conditions	Resolved
JRA-2852	search for issues on version lower or equal to a given version	Resolved
JRA-3000	Add key NUMBER (only number) searching to default search filter.	Resolved
JRA-3101	Jira - query / search / filter by issue links	Resolved
JRA-3114	Request: add optional icon for each project	Resolved
JRA-3451	Enable filtering by Date Resolved	Resolved
JRA-3464	allow filtering by project category	Resolved
JRA-4227	Recent History Popup - persistance across sessions & more data	Resolved
JRA-4605	new filter criteria: add NOT to all existing criteria	Resolved
JRA-4688	Browse Project: Within the tab panel, if components are hidden - the version info appears to be right aligned.	Resolved
JRA-5121	Filter Portlet with configurable columns	Resolved
JRA-5152	Show issue linked to another issue.	Resolved
JRA-5310	Watchlist should be exportable	Resolved
JRA-5435	Issue actions and operations on Issue Navigator	Resolved

JRA-5560		Improved query functionality	Resolved
JRA-5798		Project Portlet: needs multi project selection	Resolved
JRA-5844		allow multiple users when creating filters	Resolved
JRA-5965		Allow configure units of time tracking	Resolved
JRA-6010		Thought processing	Resolved
JRA-6170		Radio Buttons should support Select List Searcher template	Resolved
JRA-6180		Search for a custom field that is empty	Resolved
JRA-6527		Allow filters to be built upon other shared filters (combined filters)	Resolved
JRA-7068		Allow for list of issues to be saved as a filter	Resolved
JRA-7909		Search/ filter for "empty" fields	Resolved
JRA-8487		Bad logging from uk.ltd.getahead.dwr.util.CommonsLoggingOutput on startup	Resolved
JRA-8686		Allow searching of issues by Full Name for all user fields	Resolved
JRA-8758		Cannot create filter for multiple projects all issues in version "Released Versions"	Resolved
JRA-8806		Allow "Released" & "Unreleased" Version search accross multiple projects	Resolved
JRA-9115		Ability to search for issues with no due date associated	Resolved
JRA-9278		New Field "Resolution Date" automatically filled with date of setting resolution	Resolved
JRA-9658		Minor css bug (cursor)	Resolved
JRA-9823		Allow to optionally clone an issue's attachments when cloning an issue.	Resolved
JRA-10405		Attachment ordering	Resolved
JRA-10492		Search for several users as Assignee or Reporter	Resolved
JRA-10644		Make filters more accessible	Resolved
JRA-10658		More columns on Dashboards	Resolved
JRA-11134		Allow setting of column order/sort with no issues in result set	Resolved
JRA-12177		Time tracking by using setting "hours" - edit issue shows "Original/Remaining Estimate" -field value in "pretty" mode	Resolved
JRA-12596		Enable cross-project filtering on special versions	Resolved
JRA-12656		Add paging/optimization for Change Log scope	Resolved
JRA-13426		Next/previous version links for 'Browse Version' screen	Resolved

JRA-13745		Clean up top toolbar by moving Profile link to username and removing Filters link	Resolved
JRA-13850		Servlet Content Listeners should implement the catch / log / rethrow pattern	Resolved
JRA-14220		Ensure the index optimize operation does not cause index lock timeouts	Resolved
JRA-14419		Warning for Websphere installation on validating entity-engine.xml	Resolved
JRA-14513		JIRA Soap Service log and Access filter log footprint needs improving - Invoked Method would be handy	Resolved
JRA-14516		JIRA upgrade page should warn about possible character encoding issue if JIRA is moved between two servers.	Resolved
JRA-14598		Add access key for administer project from browse project	Resolved
JRA-14701		OSPropertyText table should have the value column set to extremely-long datatype	Resolved
JRA-14826		Dashboards with a large number of portal pages cause the page to become too wide	Resolved
JRA-15018		Improved SOAP and HTTP access logging	Resolved
JRA-15266		Would prefer if the "Worklog" heading under "Operations" when viewing an issue were a link, like the rest of the operations.	Closed
JRA-15445		RPC plugin needs to be cleaned up	Resolved
JRA-15517		Upgrade JIRA to use the latest version of Lucene indexing framework - v2.3.2	Resolved
JRA-15543		Show release date next to version name in the list of versions on Browse Project screen	Resolved
JRA-15646		Convert JIRA to jQuery	Resolved
JRA-15649		Sort list of plugins in Admin section alphabetically	Resolved
JRA-15665		Address issue of plugins pushing filter/report panel off screen	Resolved
JRA-15666		Add project information to the issue XML view	Resolved
JRA-15700		Created VS Resolved cumulative + individual graphs' Y axis should should be independent	Resolved
JRA-15702		Migrate to licensing 2.0	Resolved
JRA-15732		Update email documentation to highlight that OutOfMemoryError can stop email processing	Resolved
JRA-15846		Allow changing license on Data Import in new JIRA instance.	Resolved
JRA-15872		"Browse Project" URL doesn't include current project	Resolved
JRA-15886		Add logging notification for index optimization events	Resolved
JRA-15920		Include warning in EAR/WAR documentation not to edit anything directly on the application server	Resolved
JRA-15962		Upgrade JIRA to Plugins 2.x	Resolved
JRA-15991		Merge translations files into one to make translating JIRA easier!	Resolved

JRA-16058		Aggressive locking in JiraCachingPropertySet causes high contention	Resolved
JRA-16113		Do not show negative values on Y axis in Created vs. Resolved chart	Resolved
JRA-16122		HTTP Basic auth should be enabled by default	Resolved
JRA-16138		Anonymous users should not be considered to "own" all anonymous comments.	Resolved
JRA-16210		Display issue count on JQL execution	Resolved
JRA-16211		Enter / return should execute JQL	Resolved
JRA-16253		Source Build documentation is out of date and incomplete	Resolved
JRA-16276		Adjust colours of Resoltion date chart to be more distinshable for the colour blind	Resolved
JRA-16278		Add ability to search for versions using regex or similar	Resolved
JRA-16379		Weblogic Deployment descriptor (weblogic.xml) has changed for Weblogic 9.x	Resolved
JRA-16424		log4j output should contain more information	Resolved
JRA-16443		Create a jira.field.resolution.include transition attribute	Resolved
JRA-16510		Update to jQuery 1.3.2	Resolved
JRA-16522		Searching according to multiple assignees should be provided.	Resolved
JRA-16661		No way to cancel the "Project avatar" dialog	Resolved
JRA-16698		Have the ability to log all SQL statements issued by JIRA and also have a callback for timing purposes	Resolved
JRA-16744		Improve the performance of checking if a user belongs to a particular group.	Resolved
JRA-16793		A new section "JIRA Configuration" is needed in System Info page	Resolved
JRA-16838		Ensure Save button is disabled after submitting on the chart popup	Resolved
JRA-16839		Add nicer dashboard tabs	Resolved
JRA-16846		Allow for Pluggable Decorators in JIRA	Resolved
JRA-16870		Improve multi-threaded liveness of FieldLayoutManager under load	Resolved
JRA-17025		Link to the JIRA Knowledge Base in the Apache docs	Resolved
JRA-17128		Profiling document broken link	Resolved
JRA-17215		Environment field is missing from the bulk operations screen	Resolved
JRA-17217		French translation for "Road Map"	Resolved
JRA-17296		Add attribute for hidding a gadget when not logged in	Resolved

JRA-17314		Need a way to use the WebResourceManager to include JS/CSS for project tab panels and portlets	Resolved
JRA-17324		Make browse project/component/version use cached url for project avatar	Resolved
JRA-17361		Style gadget mini-messages to be more atlassian like	Resolved
JRA-17391		JIRA_HOME path in windows needs to be specified using backslash(or as Mac) and not as default windows way. Needs to document it to avoid confusion.	Resolved
JRA-17404		Improve logging/UI when plugins can't be loaded.	Resolved
JRA-17412		Ability for support to easily tell if a patch has been applied	Resolved
JRA-17429		JIRA should only persist a plugin as disabled if it was explicitly disabled by the user. If it got disabled because it was invalid, then JIRA should try to enable it on restart.	Resolved
JRA-17474		Choosing an non-existing drive as destination directory for windows installer give wrong error message	Resolved
JRA-17483		Need to add info about jira.home to README files in top directory	Resolved
JRA-17496		re-write dashboard client-side	Closed
JRA-17515		Put the JQL slow log into its own file.	Resolved
JRA-17562		Performance Improvements for JIRA v4.0	Resolved
JRA-17674		Issue summary page: Please duplicate link "Manage Attachments" under section "Image Attachments"	Resolved
JRA-17682		Add a warning to the reports documentation.	Resolved
JRA-17698		Remove dependency on backport.util.concurrent	Resolved
JRA-17756		Remove DWR from JIRA	Resolved
JRA-17779		JQL reserve words should be mention in documentation	Resolved
JRA-17797		JQL: Some points to add in documentation of JQL	Resolved
JRA-17916		Update JAC hardware spec on Requirements page	Resolved
JRA-17950		Instructions for deleting an issue type are too vague, and docs do not further explain them	Resolved
JRA-17978		Search sort order doesn't persist when searching on free text	Resolved
JRA-18017		Footer improvements - like Bamboo	Resolved
JRA-18073		Create issue button should be aware of the current project	Resolved
JRA-18101		LDAP Integration document is confusing about what order passwords will be checked.	Resolved
JRA-18102		JQL: Error message can be improved for date field when user doesn't put quotes for value	Resolved
JRA-18105		add documentation on JQL "autocomplete"	Resolved
JRA-18110		Tool tip text for "Manage dashboard" has unecessary spaces between words	Resolved

JRA-18133		Upgrade to the latest version of Seraph and Trusted Applications library	Resolved
JRA-18145		In order for charts to appear in the charting popup, they should be in both categories JIRA and Charts	Resolved
JRA-18147		on "General Config" screen, change "JQL Auto-complete Disabled" to just "JQL Auto-complete" (as per "Issue Picker Auto-complete")	Resolved
JRA-18165		JIRA 4.0 GUI comments	Resolved
JRA-18225		It would be cool to have the operations (save, save as, etc) in the advanced navigator view so you do not have to go to the view tab	Resolved
JRA-18228		Per-user JQL autocomplete setting	Resolved
JRA-18232		It will be great if we can limit the number of favourite filters in issue drop down to 5	Resolved
JRA-18236		JQL History links should be middle clickable	Resolved
JRA-18237		The error message 'Query is too complex to display in the Issue Navigator edit controls' should be changed to "Query is too complex to display in Simple mode"	Resolved

^Top

JIRA 4.0 Beta 5 Release Notes

September 15, 2009

JIRA 4.0 Beta 5 is a public development release leading up to **JIRA 4.0**. For all production use and testing of JIRA, please use the latest official release.

A **Beta release** is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release.

> **Do not use in production**
> Beta releases should not be used in production environments as they are not officially supported.

> **Please also take note of the following information:**
>
> - **Beta releases are not safe** — Beta releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
>   - Features in development releases may be incomplete, or may change or be removed before the next full release.
> - **No upgrade path** — Because Beta releases represent work in progress, we **cannot** provide a supported upgrade path between Beta releases, or from any Beta to the eventual final release. Thus, any data you store in a JIRA Beta release may not be able to be migrated to a future JIRA release.

> It is not possible to upgrade JIRA 4.0 Beta 1, 2, 3 or 4 data to Beta 5. The data needs to come from an already released JIRA version (for example, JIRA 3.13.5).

> The **only** plugin that is compatible with JIRA 4.0 Beta is the latest JIRA Toolkit. Do not install any other plugins.

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

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Thank you for your interest in JIRA 4.0 Beta 5
Download Beta

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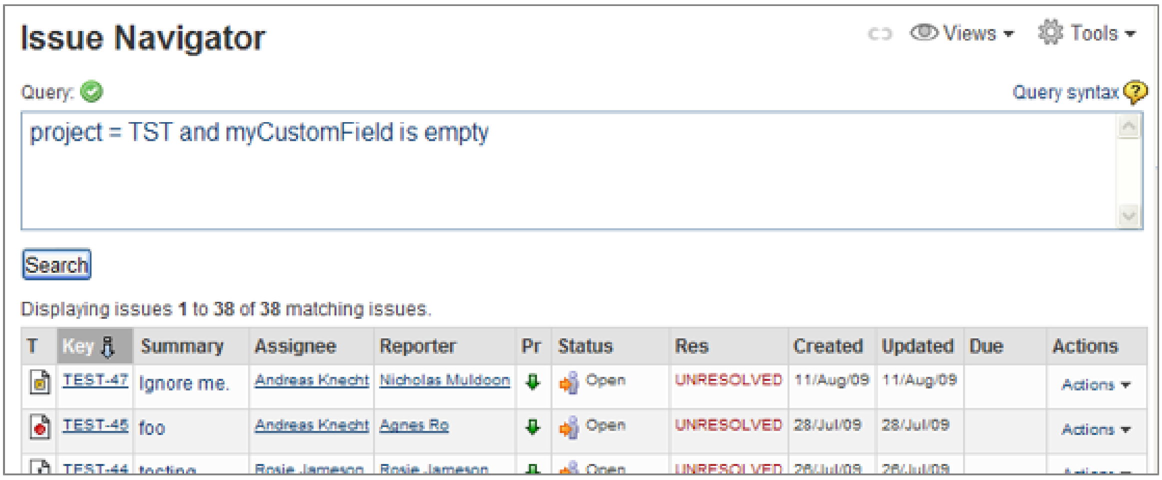


For more on the new JQL search syntax, please see the documentation.

^Top

2

Dashboard Gadgets

The new-look JIRA dashboard not only looks awesome: it now uses industry-standard 'gadgets'. So you can add external gadgets to your JIRA dashboard, as well as displaying JIRA gadgets in other places (such as iGoogle).

You can easily customise your dashboard by choosing a different layout, adding more gadgets, dragging the gadgets into different positions, and changing the look of individual gadgets.

What's happened to your favourite JIRA portlets? Don't worry: every portlet that previously shipped with JIRA has been converted to a 'legacy gadget'. And if you are a plugin developer and have created your own portlets, see the instructions for converting your portlets to gadgets.

The following gadgets are available in Beta 4:

- 'Activity Stream' gadget (see below)
- 'Admin' gadget
- 'Bamboo Plan Summary' gadget*
- 'Bamboo Status' gadget*
- 'Crucible Charting' gadget
- 'Create Issue' gadget

- 'Favourite Filters' gadget
- 'Filter Results' gadget
- 'FishEye Charting' gadget
- 'Introduction' gadget
- 'Issue Completed This Iteration' gadget
- 'Login' gadget
- 'Quicklinks' gadget
- 'Voted Issues' gadget

* Requires Bamboo 2.3.2 Beta 1 or later.

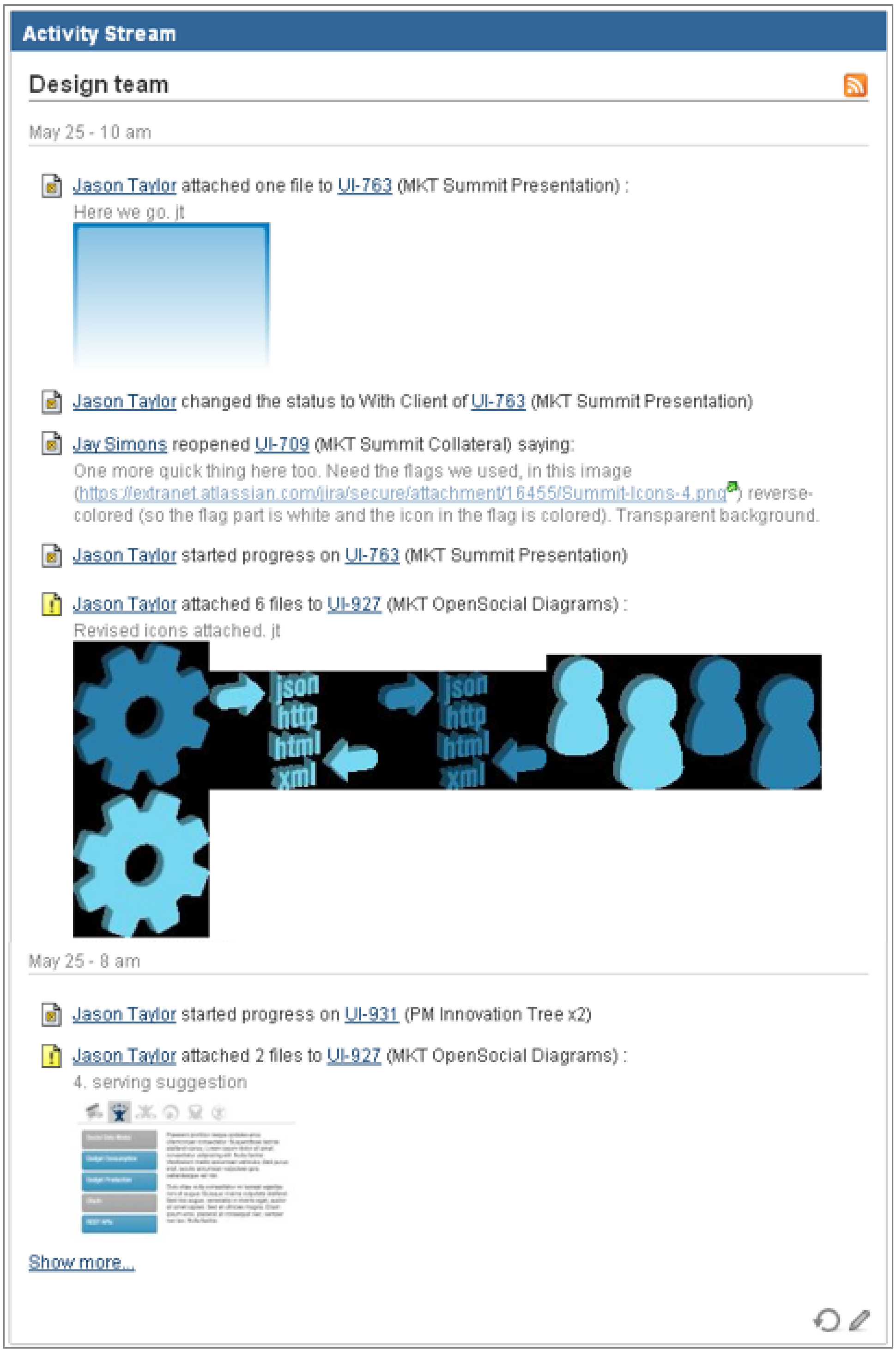
^Top

Activity Stream

The new '**Activity Stream**' gadget displays a summary of the latest activity in JIRA projects (and/or by particular people) in which you are interested.

The '**Activity Stream**' gadget also provides an RSS feed, allowing you to create very specific RSS feeds of only the information that is most relevant to you.

See the documentation for more details.

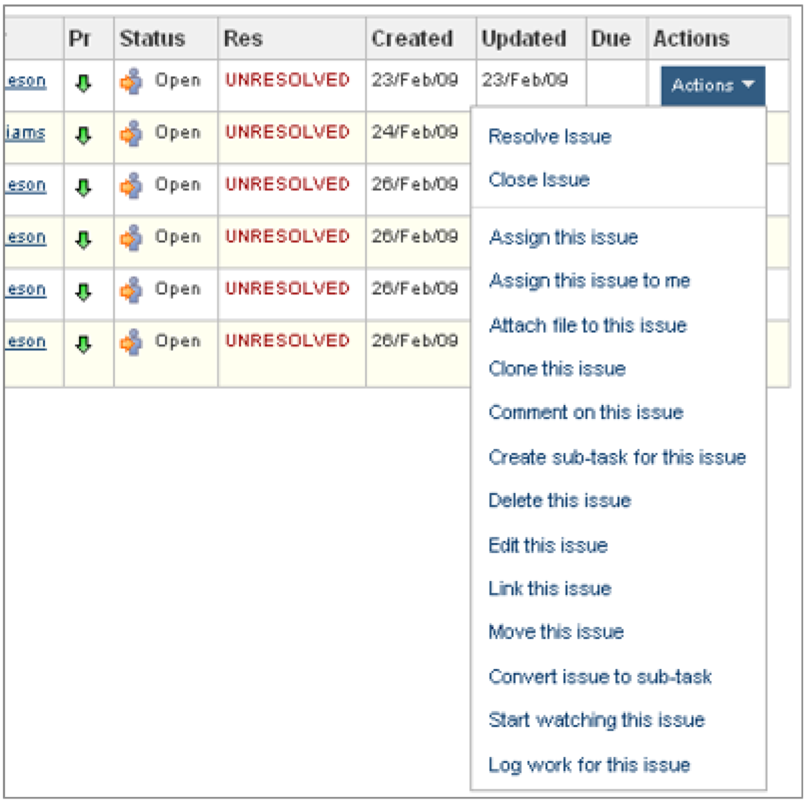


^Top

4

Issue Actions in the Issue Navigator

By popular request, issues can now be actioned directly from the Issue Navigator:

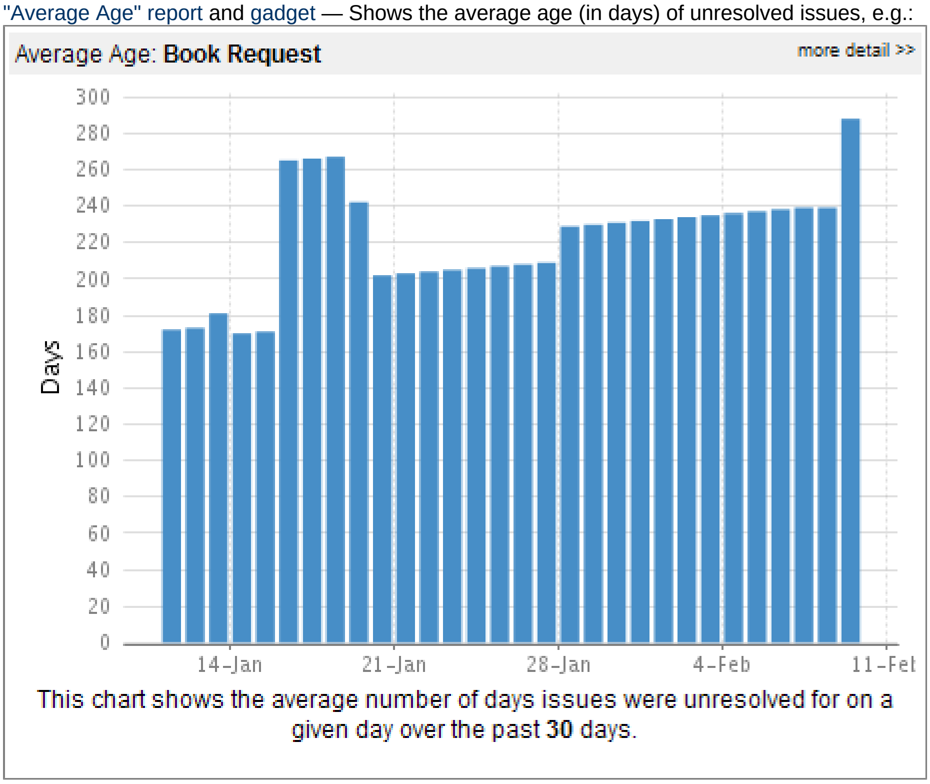


The "Actions" menu is also available for the list of sub-tasks within an issue.
^Top

Charting Now Comes Standard

The following reports and gadgets from the Charting plugin have now been integrated into JIRA:

- "Average Age" report and gadget — Shows the average age (in days) of unresolved issues, e.g.:



- "Created vs Resolved Issues" report and gadget — Shows the number of issues created vs number of issues resolved over a given period of time.

- "Pie Chart" report and gadget — Shows the search results from a specified issue filter (or project) in a pie-chart, based on a statistic of your choice.
- "Recently Created Issues" report and gadget — Shows the rate at which issues are being created.
- "Resolution Time" report and gadget — Shows the average time taken to resolve issues.
- "Time Since Issues" report and gadget — Shows the number of issues for which your chosen date field (e.g. 'Created') was set on a given date.

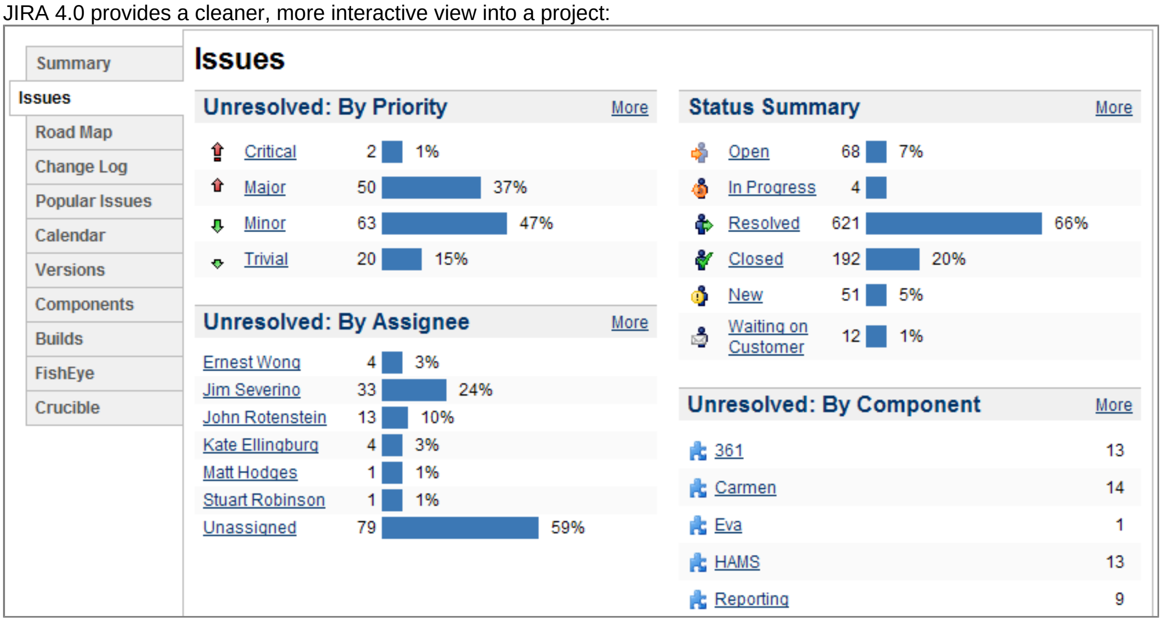
Also, the "Resolved" field from the Charting plugin is now part of JIRA, so every issue now automatically has its resolution date recorded.

^Top

6

New-look "Browse Project"

JIRA 4.0 provides a cleaner, more interactive view into a project:

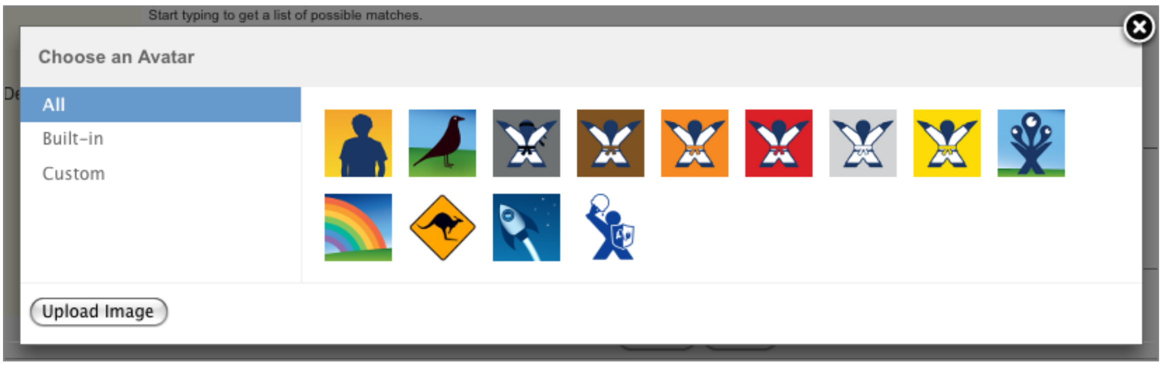


See the documentation for more about browsing projects, versions and components.
^Top

7

Project Icons

You can now give your project a visual identity, thanks to the introduction of project icons ('avatars'):



^Top

8

New-look Header

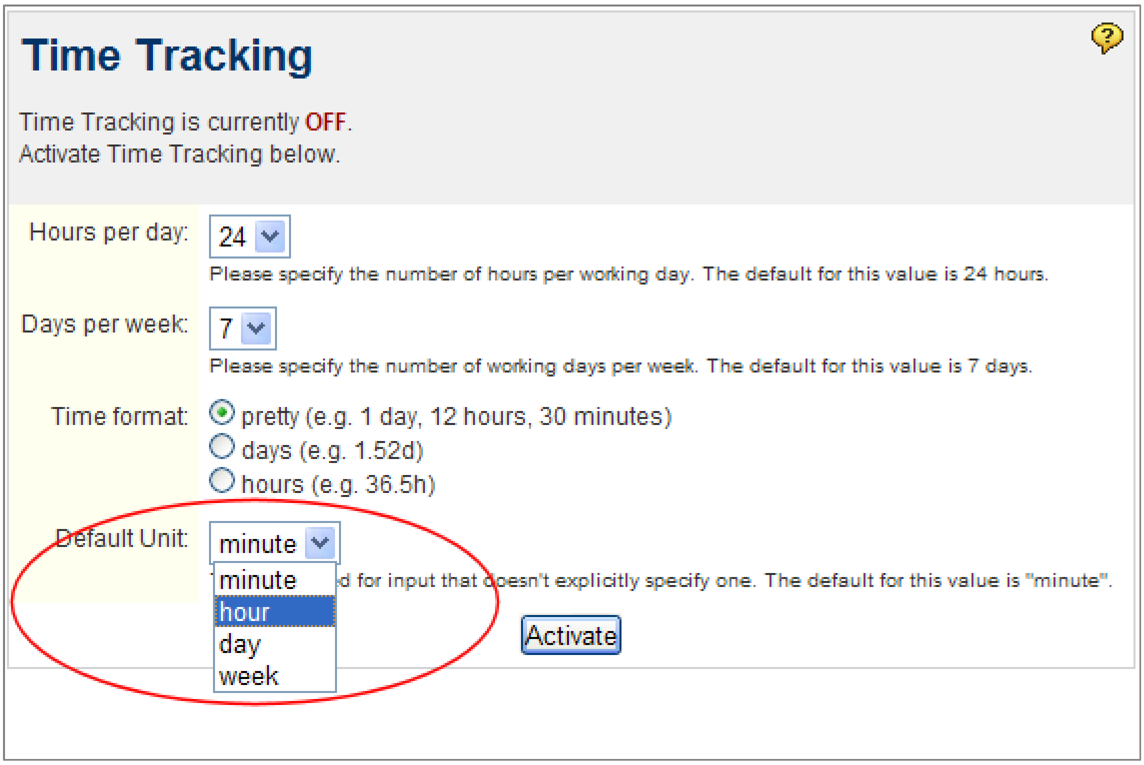
The new-look JIRA header gives you quick access to all the most commonly-used functions. Creating an issue just got super-fast!

Click to zoom in:

If you prefer keystrokes rather than mouse-clicks, you'll be pleased to know that you can use your keyboard to navigate the new header menus.
^Top

Default Unit for Time Tracking

You can now specify your preferred **Default Unit** (minutes/hours/days/weeks) for your JIRA system. This will be applied whenever users log work on an issue without specifying a unit.



^Top

"History" is now permanent

Your list of recently-viewed issues is now stored in JIRA's database — so it's available after you log out and back in, even if you use a different machine.

^Top

11

Engine Room

Beyond the 'Back' Button

When navigating away from a page where you have modified data, you will be prompted to see if you would like to save the data or discard your changes (see JRA-14911).

Index Queue

Index updates are now put in a queue. So even if the update takes longer than 30 seconds, the operation remains on the queue and is not lost. (See JRA-14220.)

^Top

12

Plus over 800 other fixes and improvements

Click here for full list.

JIRA Issues (200 issues)				
Key	**Type**	**Summary**	**Priority**	**Status**
JRA-1538		Filter on Versions and Components across Projects		Resolved
JRA-1579		Create a portlet for the recent history		Resolved
JRA-2033		Add an RSS feed query for comments to individual issues		Resolved
JRA-2681		Extend filter capablities by adding negative clauses		Resolved
JRA-2810		Recently viewed issues		Resolved
JRA-2916		Allow Previous version searching		Resolved
JRA-2925		Can't filter by Security Level		Resolved
JRA-3206		View issues without an estimate		Resolved
JRA-3624		released/unreleased version filter		Resolved
JRA-4059		Record last login time for a user		Resolved
JRA-5383		My Votes and My Watches as filters		Resolved
JRA-7551		Provide capability to find issues by resolution date		Resolved
JRA-7626		Build search queries remotely		Resolved
JRA-7772		Ability to create advanced queries to search across all data		Resolved
JRA-8159		Add ability to issue navigator to find all issues linked to x issue - with option to constrain by link		

		type	Resolved
JRA-8527		Put task actions directly in filter output	Resolved
JRA-8606		Need a way to find watched issues	Resolved
JRA-8852		Sort filter results by non-visible field	Resolved
JRA-8973		RSS of Project Changes	Resolved
JRA-9551		Search for all Sub-Tasks of one given issue	Resolved
JRA-9651		User Activity Log	Resolved
JRA-10245		Ability to filter/view Issues upon "Versions" across multiple "Projects"	Resolved
JRA-10443		"Not Assigned to User" criteria in filters	Resolved
JRA-10603		MultipleSelect searcher for cascading selection field	Resolved
JRA-12921		Ability to export Watched Issues to excel	Resolved
JRA-14613		Each project can have its own logo	Resolved
JRA-14616		Ability to query for issues that you are not watching	Resolved
JRA-14983		Fetch only updated or changed issues	Resolved
JRA-15575		Test and confim JIRA is compatible with Microsoft SQL Server 2008	Resolved
JRA-16067		Provide field definition in XML issue view URL to customize XML view	Resolved
JRA-16120		Dashboard rewrite	Resolved
JRA-16509		Check for javascript enabled in browser	Resolved
JRA-16805		Convert legacy portlets to Gadgets	Resolved
JRA-16807		Convert Intro Portlet	Resolved
JRA-16808		Convert Quicklinks portlet	Resolved
JRA-16809		Convert Favourite Fitlers	Resolved
JRA-16811		Convert Pie Chart Portlet	Resolved
JRA-16903		Convert CreatedVsResolved Chart Portlet	Resolved
JRA-16905		Convert Average Age Chart	Resolved
JRA-16914		Convert Recently Created Portlet	Resolved
JRA-16916		Convert Time Since Chart	Resolved

JRA-16920		Add filter option for subtasks of a particular issue	Resolved
JRA-16926		Implement OAuth SPI in JIRA	Resolved
JRA-16931		Convert Saved Filter Portlet	Resolved
JRA-16978		Option "Number to Show" in Filter Statistics Portlet to limit numer of rows displayed	Resolved
JRA-17090		Convert Admin Portlet to gadget	Resolved
JRA-17094		Convert Bugzilla portlet	Resolved
JRA-17095		Convert Project/Projects/Project Table portlets into a gadget	Resolved
JRA-17096		Convert Project / Filter stats Portlet to gadget	Resolved
JRA-17101		Convert TwoDimensionalStatsPortlet to gadgets	Resolved
JRA-17112		Convert Roadmap Portlet to gadgets	Resolved
JRA-17133		Convert Resolution Time Chart to gadgets	Resolved
JRA-17140		Convert Assign To Me portlet to gadget	Resolved
JRA-17141		Convert Voted For Portlet to gadget	Resolved
JRA-17142		Convert Watching Portlet to gadget	Resolved
JRA-17143		Convert In-progress portlet to gadget	Resolved
JRA-17182		Allow REST plugins to be decorated	Resolved
JRA-17337		New Header for JIRA 4.0	Resolved
JRA-17355		Need provision to search multiple group	Resolved
JRA-17763		JQL: It will great if user can use E-mail ID's for searching in Assignee and reporter fields	Resolved
JRA-923		Allow filter by "No Fix For" across projects	Resolved
JRA-1560		Better support for logical operation (and/or/not) type of filters.	Resolved
JRA-1635		"not" qualifier on fields for searching	Resolved
JRA-1642		Create home directory instead of index & attachment directory	Resolved
JRA-1800		Improve the UI for browse project	Resolved
JRA-1844		Display attachment comments associated with their attachments	Resolved
JRA-1983		Enable filtering on "older than 1 month"	Resolved
JRA-1994		Ability to filter on time tracking related fields	Resolved

JRA-2469		It would be really nice to specficy several Asignee options in filters	Resolved
JRA-2607		Would like to create a filter also with OR conditions	Resolved
JRA-2852		search for issues on version lower or equal to a given version	Resolved
JRA-3000		Add key NUMBER (only number) searching to default search filter.	Resolved
JRA-3101		Jira - query / search / filter by issue links	Resolved
JRA-3114		Request: add optional icon for each project	Resolved
JRA-3451		Enable filtering by Date Resolved	Resolved
JRA-3464		allow filtering by project category	Resolved
JRA-4227		Recent History Popup - persistance across sessions & more data	Resolved
JRA-4605		new filter criteria: add NOT to all existing criteria	Resolved
JRA-4688		Browse Project: Within the tab panel, if components are hidden - the version info appears to be right aligned.	Resolved
JRA-5121		Filter Portlet with configurable columns	Resolved
JRA-5152		Show issue linked to another issue.	Resolved
JRA-5310		Watchlist should be exportable	Resolved
JRA-5435		Issue actions and operations on Issue Navigator	Resolved
JRA-5560		Improved query functionality	Resolved
JRA-5798		Project Portlet: needs multi project selection	Resolved
JRA-5844		allow multiple users when creating filters	Resolved
JRA-5965		Allow configure units of time tracking	Resolved
JRA-6010		Thought processing	Resolved
JRA-6170		Radio Buttons should support Select List Searcher template	Resolved
JRA-6180		Search for a custom field that is empty	Resolved
JRA-6527		Allow filters to be built upon other shared filters (combined filters)	Resolved
JRA-7068		Allow for list of issues to be saved as a filter	Resolved
JRA-7909		Search/ filter for "empty" fields	Resolved
JRA-8487		Bad logging from uk.ltd.getahead.dwr.util.CommonsLoggingOutput on startup	Resolved
JRA-8686		Allow searching of issues by Full Name for all user fields	Resolved

JRA-8758		Cannot create filter for multiple projects all issues in version "Released Versions"	Resolved
JRA-8806		Allow "Released" & "Unreleased" Version search accross multiple projects	Resolved
JRA-9115		Ability to search for issues with no due date associated	Resolved
JRA-9278		New Field "Resolution Date" automatically filled with date of setting resolution	Resolved
JRA-9658		Minor css bug (cursor)	Resolved
JRA-9823		Allow to optionally clone an issue's attachments when cloning an issue.	Resolved
JRA-10405		Attachment ordering	Resolved
JRA-10492		Search for several users as Assignee or Reporter	Resolved
JRA-10644		Make filters more accessible	Resolved
JRA-10658		More columns on Dashboards	Resolved
JRA-11134		Allow setting of column order/sort with no issues in result set	Resolved
JRA-12177		Time tracking by using setting "hours" - edit issue shows "Original/Remaining Estimate" -field value in "pretty" mode	Resolved
JRA-12596		Enable cross-project filtering on special versions	Resolved
JRA-12656		Add paging/optimization for Change Log scope	Resolved
JRA-13426		Next/previous version links for 'Browse Version' screen	Resolved
JRA-13745		Clean up top toolbar by moving Profile link to username and removing Filters link	Resolved
JRA-13850		Servlet Content Listeners should implement the catch / log / rethrow pattern	Resolved
JRA-14220		Ensure the index optimize operation does not cause index lock timeouts	Resolved
JRA-14419		Warning for Websphere installation on validating entity-engine.xml	Resolved
JRA-14513		JIRA Soap Service log and Access filter log footprint needs improving - Invoked Method would be handy	Resolved
JRA-14516		JIRA upgrade page should warn about possible character encoding issue if JIRA is moved between two servers.	Resolved
JRA-14598		Add access key for administer project from browse project	Resolved
JRA-14701		OSPropertyText table should have the value column set to extremely-long datatype	Resolved
JRA-14826		Dashboards with a large number of portal pages cause the page to become too wide	Resolved
JRA-15018		Improved SOAP and HTTP access logging	Resolved
JRA-15266		Would prefer if the "Worklog" heading under "Operations" when viewing an issue were a link, like the rest of the operations.	Closed
JRA-15445		RPC plugin needs to be cleaned up	Resolved

JRA-15517		Upgrade JIRA to use the latest version of Lucene indexing framework - v2.3.2	Resolved
JRA-15543		Show release date next to version name in the list of versions on Browse Project screen	Resolved
JRA-15646		Convert JIRA to jQuery	Resolved
JRA-15649		Sort list of plugins in Admin section alphabetically	Resolved
JRA-15665		Address issue of plugins pushing filter/report panel off screen	Resolved
JRA-15666		Add project information to the issue XML view	Resolved
JRA-15700		Created VS Resolved cumulative + individual graphs' Y axis should should be independent	Resolved
JRA-15702		Migrate to licensing 2.0	Resolved
JRA-15732		Update email documentation to highlight that OutOfMemoryError can stop email processing	Resolved
JRA-15846		Allow changing license on Data Import in new JIRA instance.	Resolved
JRA-15872		"Browse Project" URL doesn't include current project	Resolved
JRA-15886		Add logging notification for index optimization events	Resolved
JRA-15920		Include warning in EAR/WAR documentation not to edit anything directly on the application server	Resolved
JRA-15962		Upgrade JIRA to Plugins 2.x	Resolved
JRA-15991		Merge translations files into one to make translating JIRA easier!	Resolved
JRA-16058		Aggressive locking in JiraCachingPropertySet causes high contention	Resolved
JRA-16113		Do not show negative values on Y axis in Created vs. Resolved chart	Resolved
JRA-16122		HTTP Basic auth should be enabled by default	Resolved
JRA-16138		Anonymous users should not be considered to "own" all anonymous comments.	Resolved
JRA-16210		Display issue count on JQL execution	Resolved
JRA-16211		Enter / return should execute JQL	Resolved
JRA-16253		Source Build documentation is out of date and incomplete	Resolved
JRA-16276		Adjust colours of Resoltion date chart to be more distinshable for the colour blind	Resolved
JRA-16278		Add ability to search for versions using regex or similar	Resolved
JRA-16379		Weblogic Deployment descriptor (weblogic.xml) has changed for Weblogic 9.x	Resolved
JRA-16424		log4j output should contain more information	Resolved
JRA-16443		Create a jira.field.resolution.include transition attribute	Resolved

JRA-16510	Update to jQuery 1.3.2	Resolved
JRA-16522	Searching according to multiple assignees should be provided.	Resolved
JRA-16661	No way to cancel the "Project avatar" dialog	Resolved
JRA-16698	Have the ability to log all SQL statements issued by JIRA and also have a callback for timing purposes	Resolved
JRA-16744	Improve the performance of checking if a user belongs to a particular group.	Resolved
JRA-16793	A new section "JIRA Configuration" is needed in System Info page	Resolved
JRA-16838	Ensure Save button is disabled after submitting on the chart popup	Resolved
JRA-16839	Add nicer dashboard tabs	Resolved
JRA-16846	Allow for Pluggable Decorators in JIRA	Resolved
JRA-16870	Improve multi-threaded liveness of FieldLayoutManager under load	Resolved
JRA-17025	Link to the JIRA Knowledge Base in the Apache docs	Resolved
JRA-17128	Profiling document broken link	Resolved
JRA-17215	Environment field is missing from the bulk operations screen	Resolved
JRA-17217	French translation for "Road Map"	Resolved
JRA-17296	Add attribute for hidding a gadget when not logged in	Resolved
JRA-17314	Need a way to use the WebResourceManager to include JS/CSS for project tab panels and portlets	Resolved
JRA-17324	Make browse project/component/version use cached url for project avatar	Resolved
JRA-17361	Style gadget mini-messages to be more atlassian like	Resolved
JRA-17391	JIRA_HOME path in windows needs to be specified using backslash(or as Mac) and not as default windows way. Needs to document it to avoid confusion.	Resolved
JRA-17404	Improve logging/UI when plugins can't be loaded.	Resolved
JRA-17412	Ability for support to easily tell if a patch has been applied	Resolved
JRA-17429	JIRA should only persist a plugin as disabled if it was explicitly disabled by the user. If it got disabled because it was invalid, then JIRA should try to enable it on restart.	Resolved
JRA-17474	Choosing an non-existing drive as destination directory for windows installer give wrong error message	Resolved
JRA-17483	Need to add info about jira.home to README files in top directory	Resolved
JRA-17496	re-write dashboard client-side	Closed
JRA-17515	Put the JQL slow log into its own file.	Resolved
JRA-17562	Performance Improvements for JIRA v4.0	Resolved

JRA-17674		Issue summary page: Please duplicate link "Manage Attachments" under section "Image Attachments"	Resolved
JRA-17682		Add a warning to the reports documentation.	Resolved
JRA-17698		Remove dependency on backport.util.concurrent	Resolved
JRA-17756		Remove DWR from JIRA	Resolved
JRA-17779		JQL reserve words should be mention in documentation	Resolved
JRA-17797		JQL: Some points to add in documentation of JQL	Resolved
JRA-17916		Update JAC hardware spec on Requirements page	Resolved
JRA-17950		Instructions for deleting an issue type are too vague, and docs do not further explain them	Resolved
JRA-17978		Search sort order doesn't persist when searching on free text	Resolved
JRA-18017		Footer improvements - like Bamboo	Resolved
JRA-18073		Create issue button should be aware of the current project	Resolved
JRA-18101		LDAP Integration document is confusing about what order passwords will be checked.	Resolved
JRA-18102		JQL: Error message can be improved for date field when user doesn't put quotes for value	Resolved
JRA-18105		add documentation on JQL "autocomplete"	Resolved
JRA-18110		Tool tip text for "Manage dashboard" has unecessary spaces between words	Resolved
JRA-18133		Upgrade to the latest version of Seraph and Trusted Applications library	Resolved
JRA-18145		In order for charts to appear in the charting popup, they should be in both categories JIRA and Charts	Resolved
JRA-18147		on "General Config" screen, change "JQL Auto-complete Disabled" to just "JQL Auto-complete" (as per "Issue Picker Auto-complete")	Resolved
JRA-18165		JIRA 4.0 GUI comments	Resolved
JRA-18225		It would be cool to have the operations (save, save as, etc) in the advanced navigator view so you do not have to go to the view tab	Resolved
JRA-18228		Per-user JQL autocomplete setting	Resolved
JRA-18232		It will be great if we can limit the number of favourite filters in issue drop down to 5	Resolved
JRA-18236		JQL History links should be middle clickable	Resolved
JRA-18237		The error message 'Query is too complex to display in the Issue Navigator edit controls' should be changed to "Query is too complex to display in Simple mode"	Resolved

^Top

JIRA 4.0 Beta 4 Release Notes

September 6, 2009

JIRA 4.0 Beta 4 is a public development release leading up to **JIRA 4.0**. For all production use and testing of JIRA, please use the latest

official release.

A **Beta release** is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release.

> **Do not use in production**
> Beta releases should not be used in production environments as they are not officially supported.

> **Please also take note of the following information:**
>
> - **Beta releases are not safe** — Beta releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
>   - Features in development releases may be incomplete, or may change or be removed before the next full release.
> - **No upgrade path** — Because Beta releases represent work in progress, we **cannot** provide a supported upgrade path between Beta releases, or from any Beta to the eventual final release. Thus, any data you store in a JIRA Beta release may not be able to be migrated to a future JIRA release.

> It is not possible to upgrade JIRA 4.0 Beta 1, 2 or 3 data to Beta 4. The data needs to come from an already released JIRA version (for example, JIRA 3.13.5).

> The **only** plugin that is compatible with JIRA 4.0 Beta is the latest JIRA Toolkit. Do not install any other plugins.

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

Highlights of JIRA 4.0 Beta 4:

- Advanced Searching
- Dashboard Gadgets
- Activity Stream
- Issue Actions in the Issue Navigator
- Charting Now Comes Standard
- New-look "Browse Project"
- Project Icons
- New-look Header
- Default Unit for Time Tracking
- "History" is now permanent
- Engine Room
- Plus over 800 other fixes and improvements

Thank you for your interest in JIRA 4.0 Beta 4
Download Beta

Installing/Upgrading to JIRA 4.0
JIRA 4.0 Beta 4 can be downloaded here. Before upgrading, please refer to the JIRA 4.0 Upgrade Guide. You will also need to go to my.atlassian.com and generate a "**JIRA 4 Evaluation**" license, as any existing 3.x license files will not work with 4.0 Beta 4.

Highlights of JIRA 4.0 Beta 4

1

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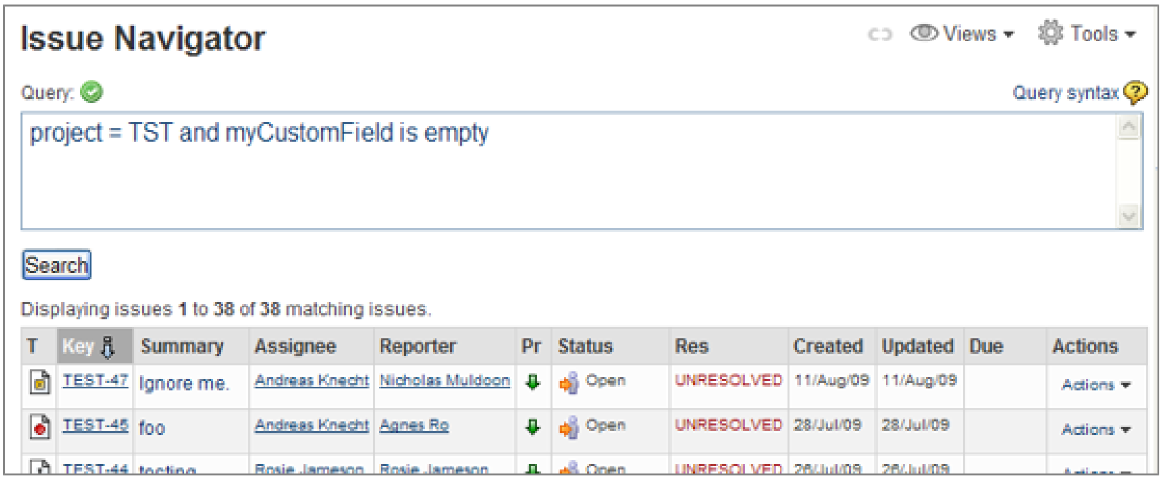

For more on the new JQL search syntax, please see the documentation.

^Top

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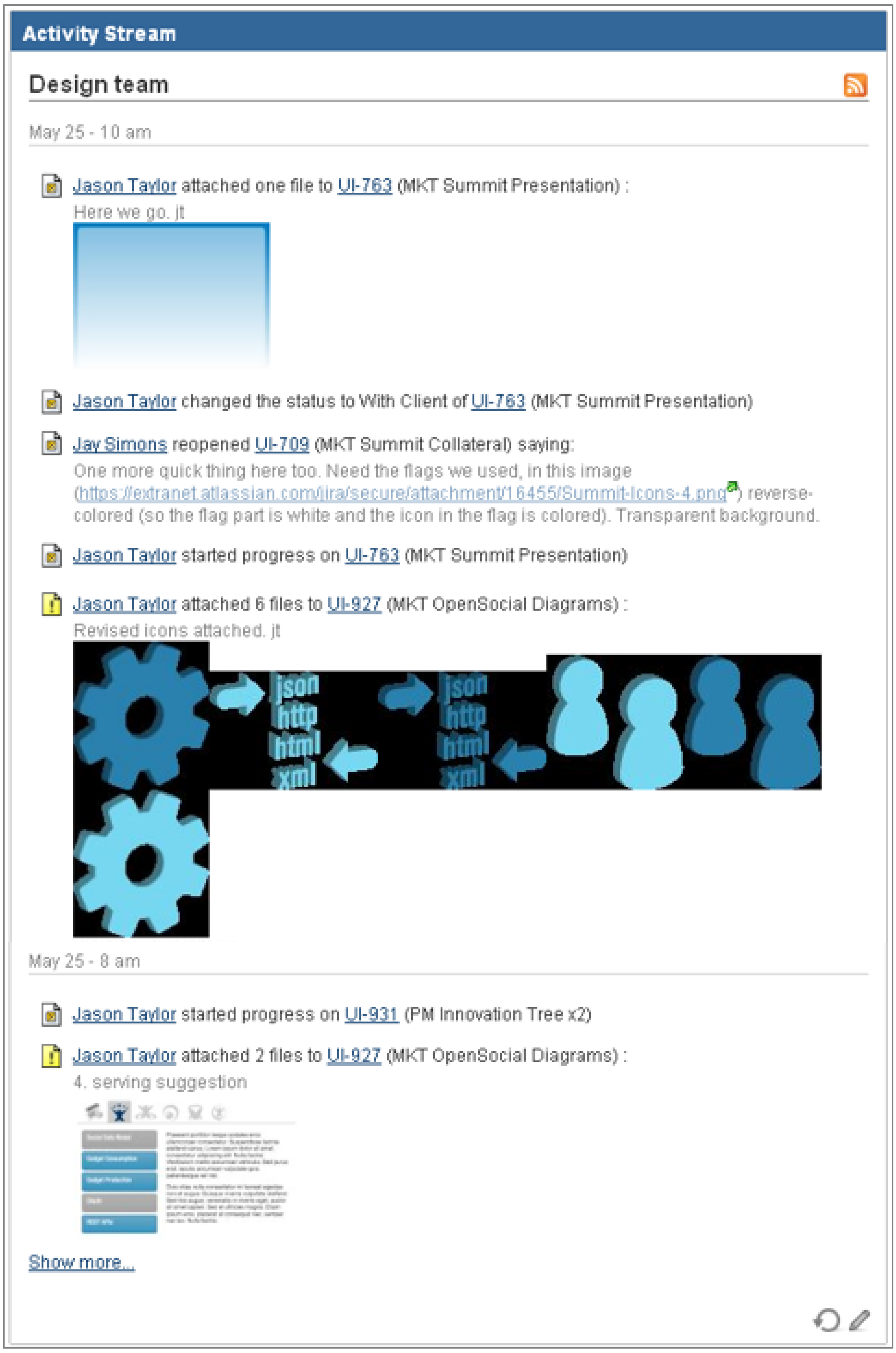

^Top

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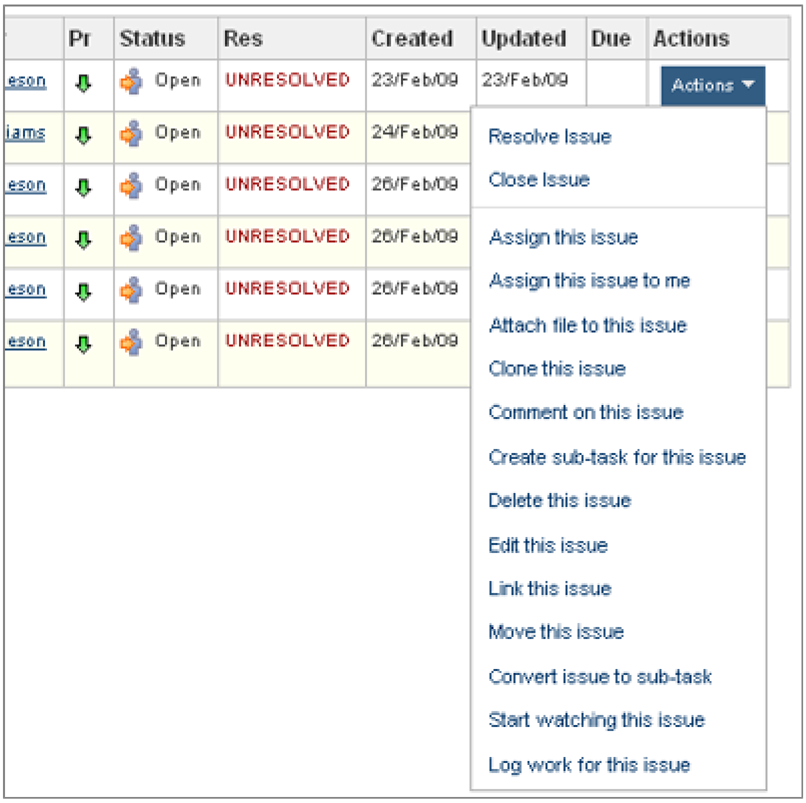
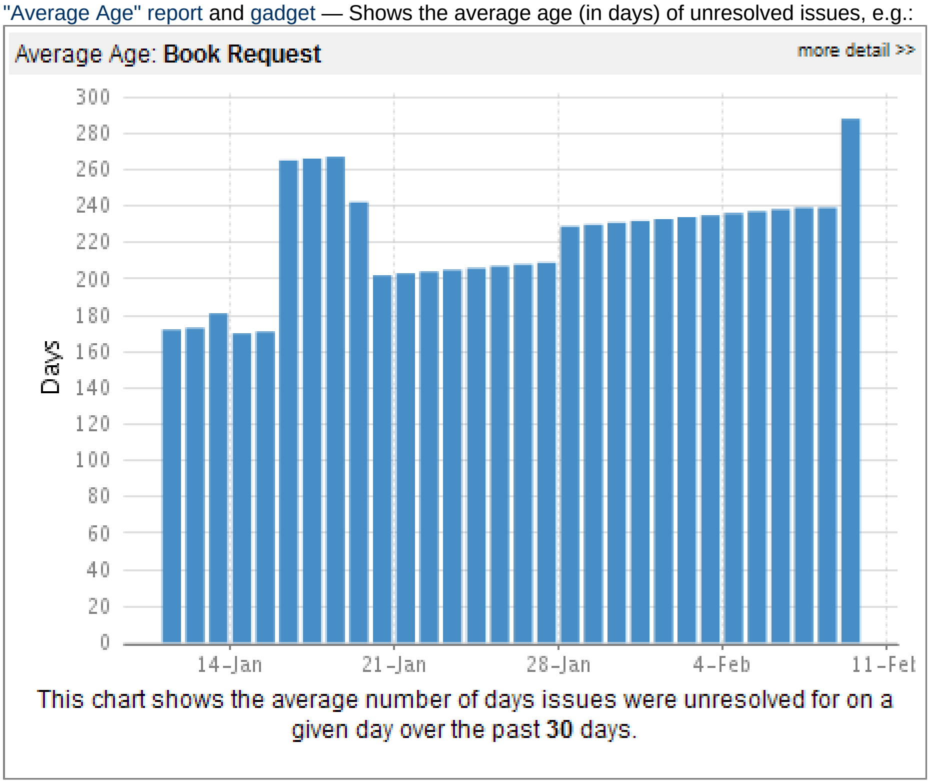


The "Actions" menu is also available for the list of sub-tasks within an issue.
^Top

Charting Now Comes Standard

The following reports and gadgets from the Charting plugin have now been integrated into JIRA:

- "Average Age" report and gadget — Shows the average age (in days) of unresolved issues, e.g.:



- "Created vs Resolved Issues" report and gadget — Shows the number of issues created vs number of issues resolved over a given period of time.

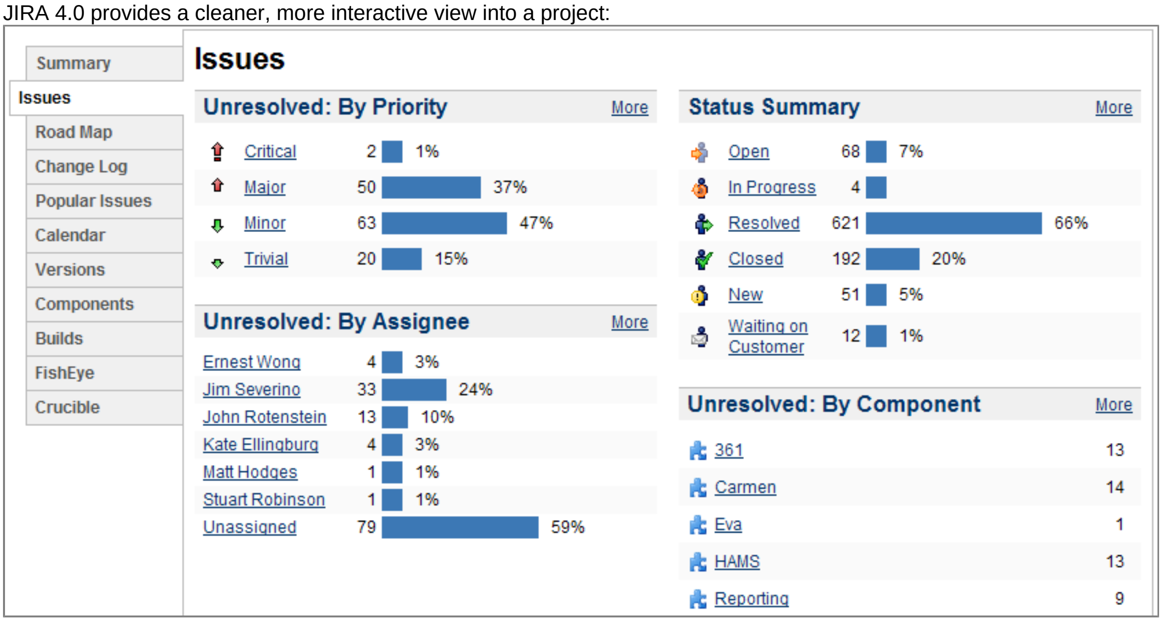
- "Pie Chart" report and gadget — Shows the search results from a specified issue filter (or project) in a pie-chart, based on a statistic of your choice.
- "Recently Created Issues" report and gadget — Shows the rate at which issues are being created.
- "Resolution Time" report and gadget — Shows the average time taken to resolve issues.
- "Time Since Issues" report and gadget — Shows the number of issues for which your chosen date field (e.g. 'Created') was set on a given date.

Also, the "Resolved" field from the Charting plugin is now part of JIRA, so every issue now automatically has its resolution date recorded.

^Top

New-look "Browse Project"

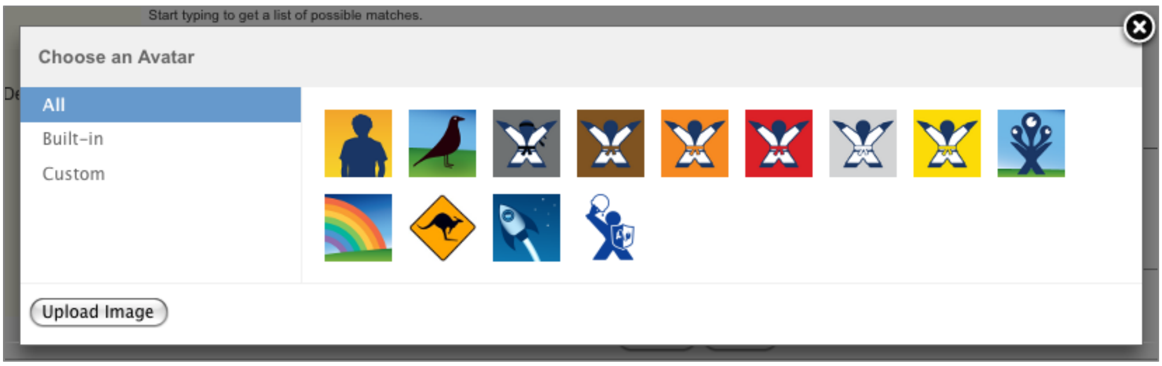
JIRA 4.0 provides a cleaner, more interactive view into a project:



See the documentation for more about browsing projects, versions and components.
^Top

Project Icons

You can now give your project a visual identity, thanks to the introduction of project icons ('avatars'):



^Top

New-look Header

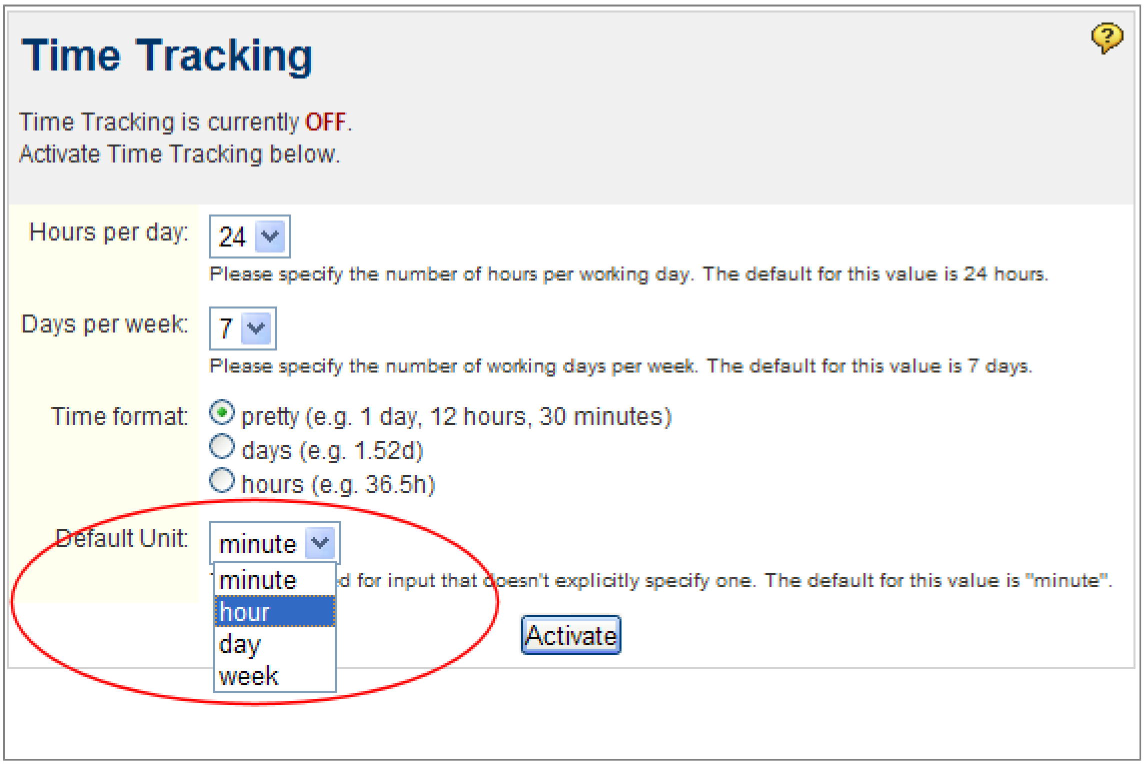
The new-look JIRA header gives you quick access to all the most commonly-used functions. Creating an issue just got super-fast!

Click to zoom in:

If you prefer keystrokes rather than mouse-clicks, you'll be pleased to know that you can use your keyboard to navigate the new header menus.
^Top

Default Unit for Time Tracking

You can now specify your preferred **Default Unit** (minutes/hours/days/weeks) for your JIRA system. This will be applied whenever users log work on an issue without specifying a unit.



^Top

"History" is now permanent

Your list of recently-viewed issues is now stored in JIRA's database — so it's available after you log out and back in, even if you use a different machine.

^Top

11

Engine Room

Beyond the 'Back' Button

When navigating away from a page where you have modified data, you will be prompted to see if you would like to save the data or discard your changes (see JRA-14911).

Index Queue

Index updates are now put in a queue. So even if the update takes longer than 30 seconds, the operation remains on the queue and is not lost. (See JRA-14220.)

^Top

12

Plus over 800 other fixes and improvements

Click here for full list.

JIRA Issues (200 issues)				
Key	**Type**	**Summary**	**Priority**	**Status**
JRA-1538		Filter on Versions and Components across Projects		Resolved
JRA-1579		Create a portlet for the recent history		Resolved
JRA-2033		Add an RSS feed query for comments to individual issues		Resolved
JRA-2681		Extend filter capablities by adding negative clauses		Resolved
JRA-2810		Recently viewed issues		Resolved
JRA-2916		Allow Previous version searching		Resolved
JRA-2925		Can't filter by Security Level		Resolved
JRA-3206		View issues without an estimate		Resolved
JRA-3624		released/unreleased version filter		Resolved
JRA-4059		Record last login time for a user		Resolved
JRA-5383		My Votes and My Watches as filters		Resolved
JRA-7551		Provide capability to find issues by resolution date		Resolved
JRA-7626		Build search queries remotely		Resolved
JRA-7772		Ability to create advanced queries to search across all data		Resolved
JRA-8159		Add ability to issue navigator to find all issues linked to x issue - with option to constrain by link		

		type	Resolved
JRA-8527		Put task actions directly in filter output	Resolved
JRA-8606		Need a way to find watched issues	Resolved
JRA-8852		Sort filter results by non-visible field	Resolved
JRA-8973		RSS of Project Changes	Resolved
JRA-9551		Search for all Sub-Tasks of one given issue	Resolved
JRA-9651		User Activity Log	Resolved
JRA-10245		Ability to filter/view Issues upon "Versions" across multiple "Projects"	Resolved
JRA-10443		"Not Assigned to User" criteria in filters	Resolved
JRA-10603		MultipleSelect searcher for cascading selection field	Resolved
JRA-12921		Ability to export Watched Issues to excel	Resolved
JRA-14613		Each project can have its own logo	Resolved
JRA-14616		Ability to query for issues that you are not watching	Resolved
JRA-14983		Fetch only updated or changed issues	Resolved
JRA-15575		Test and confim JIRA is compatible with Microsoft SQL Server 2008	Resolved
JRA-16067		Provide field definition in XML issue view URL to customize XML view	Resolved
JRA-16120		Dashboard rewrite	Resolved
JRA-16509		Check for javascript enabled in browser	Resolved
JRA-16805		Convert legacy portlets to Gadgets	Resolved
JRA-16807		Convert Intro Portlet	Resolved
JRA-16808		Convert Quicklinks portlet	Resolved
JRA-16809		Convert Favourite Fitlers	Resolved
JRA-16811		Convert Pie Chart Portlet	Resolved
JRA-16903		Convert CreatedVsResolved Chart Portlet	Resolved
JRA-16905		Convert Average Age Chart	Resolved
JRA-16914		Convert Recently Created Portlet	Resolved
JRA-16916		Convert Time Since Chart	Resolved

JRA-16920		Add filter option for subtasks of a particular issue	Resolved
JRA-16926		Implement OAuth SPI in JIRA	Resolved
JRA-16931		Convert Saved Filter Portlet	Resolved
JRA-16978		Option "Number to Show" in Filter Statistics Portlet to limit numer of rows displayed	Resolved
JRA-17090		Convert Admin Portlet to gadget	Resolved
JRA-17094		Convert Bugzilla portlet	Resolved
JRA-17095		Convert Project/Projects/Project Table portlets into a gadget	Resolved
JRA-17096		Convert Project / Filter stats Portlet to gadget	Resolved
JRA-17101		Convert TwoDimensionalStatsPortlet to gadgets	Resolved
JRA-17112		Convert Roadmap Portlet to gadgets	Resolved
JRA-17133		Convert Resolution Time Chart to gadgets	Resolved
JRA-17140		Convert Assign To Me portlet to gadget	Resolved
JRA-17141		Convert Voted For Portlet to gadget	Resolved
JRA-17142		Convert Watching Portlet to gadget	Resolved
JRA-17143		Convert In-progress portlet to gadget	Resolved
JRA-17182		Allow REST plugins to be decorated	Resolved
JRA-17337		New Header for JIRA 4.0	Resolved
JRA-17355		Need provision to search multiple group	Resolved
JRA-17763		JQL: It will great if user can use E-mail ID's for searching in Assignee and reporter fields	Resolved
JRA-923		Allow filter by "No Fix For" across projects	Resolved
JRA-1560		Better support for logical operation (and/or/not) type of filters.	Resolved
JRA-1635		"not" qualifier on fields for searching	Resolved
JRA-1642		Create home directory instead of index & attachment directory	Resolved
JRA-1800		Improve the UI for browse project	Resolved
JRA-1844		Display attachment comments associated with their attachments	Resolved
JRA-1983		Enable filtering on "older than 1 month"	Resolved
JRA-1994		Ability to filter on time tracking related fields	Resolved

JRA-2469		It would be really nice to specficy several Asignee options in filters	Resolved
JRA-2607		Would like to create a filter also with OR conditions	Resolved
JRA-2852		search for issues on version lower or equal to a given version	Resolved
JRA-3000		Add key NUMBER (only number) searching to default search filter.	Resolved
JRA-3101		Jira - query / search / filter by issue links	Resolved
JRA-3114		Request: add optional icon for each project	Resolved
JRA-3451		Enable filtering by Date Resolved	Resolved
JRA-3464		allow filtering by project category	Resolved
JRA-4227		Recent History Popup - persistance across sessions & more data	Resolved
JRA-4605		new filter criteria: add NOT to all existing criteria	Resolved
JRA-4688		Browse Project: Within the tab panel, if components are hidden - the version info appears to be right aligned.	Resolved
JRA-5121		Filter Portlet with configurable columns	Resolved
JRA-5152		Show issue linked to another issue.	Resolved
JRA-5310		Watchlist should be exportable	Resolved
JRA-5435		Issue actions and operations on Issue Navigator	Resolved
JRA-5560		Improved query functionality	Resolved
JRA-5798		Project Portlet: needs multi project selection	Resolved
JRA-5844		allow multiple users when creating filters	Resolved
JRA-5965		Allow configure units of time tracking	Resolved
JRA-6010		Thought processing	Resolved
JRA-6170		Radio Buttons should support Select List Searcher template	Resolved
JRA-6180		Search for a custom field that is empty	Resolved
JRA-6527		Allow filters to be built upon other shared filters (combined filters)	Resolved
JRA-7068		Allow for list of issues to be saved as a filter	Resolved
JRA-7909		Search/ filter for "empty" fields	Resolved
JRA-8487		Bad logging from uk.ltd.getahead.dwr.util.CommonsLoggingOutput on startup	Resolved
JRA-8686		Allow searching of issues by Full Name for all user fields	Resolved

JRA-8758		Cannot create filter for multiple projects all issues in version "Released Versions"	Resolved
JRA-8806		Allow "Released" & "Unreleased" Version search accross multiple projects	Resolved
JRA-9115		Ability to search for issues with no due date associated	Resolved
JRA-9278		New Field "Resolution Date" automatically filled with date of setting resolution	Resolved
JRA-9658		Minor css bug (cursor)	Resolved
JRA-9823		Allow to optionally clone an issue's attachments when cloning an issue.	Resolved
JRA-10405		Attachment ordering	Resolved
JRA-10492		Search for several users as Assignee or Reporter	Resolved
JRA-10644		Make filters more accessible	Resolved
JRA-10658		More columns on Dashboards	Resolved
JRA-11134		Allow setting of column order/sort with no issues in result set	Resolved
JRA-12177		Time tracking by using setting "hours" - edit issue shows "Original/Remaining Estimate" -field value in "pretty" mode	Resolved
JRA-12596		Enable cross-project filtering on special versions	Resolved
JRA-12656		Add paging/optimization for Change Log scope	Resolved
JRA-13426		Next/previous version links for 'Browse Version' screen	Resolved
JRA-13745		Clean up top toolbar by moving Profile link to username and removing Filters link	Resolved
JRA-13850		Servlet Content Listeners should implement the catch / log / rethrow pattern	Resolved
JRA-14220		Ensure the index optimize operation does not cause index lock timeouts	Resolved
JRA-14419		Warning for Websphere installation on validating entity-engine.xml	Resolved
JRA-14513		JIRA Soap Service log and Access filter log footprint needs improving - Invoked Method would be handy	Resolved
JRA-14516		JIRA upgrade page should warn about possible character encoding issue if JIRA is moved between two servers.	Resolved
JRA-14598		Add access key for administer project from browse project	Resolved
JRA-14701		OSPropertyText table should have the value column set to extremely-long datatype	Resolved
JRA-14826		Dashboards with a large number of portal pages cause the page to become too wide	Resolved
JRA-15018		Improved SOAP and HTTP access logging	Resolved
JRA-15266		Would prefer if the "Worklog" heading under "Operations" when viewing an issue were a link, like the rest of the operations.	Closed
JRA-15445		RPC plugin needs to be cleaned up	Resolved

JRA-15517		Upgrade JIRA to use the latest version of Lucene indexing framework - v2.3.2	Resolved
JRA-15543		Show release date next to version name in the list of versions on Browse Project screen	Resolved
JRA-15646		Convert JIRA to jQuery	Resolved
JRA-15649		Sort list of plugins in Admin section alphabetically	Resolved
JRA-15665		Address issue of plugins pushing filter/report panel off screen	Resolved
JRA-15666		Add project information to the issue XML view	Resolved
JRA-15700		Created VS Resolved cumulative + individual graphs' Y axis should should be independent	Resolved
JRA-15702		Migrate to licensing 2.0	Resolved
JRA-15732		Update email documentation to highlight that OutOfMemoryError can stop email processing	Resolved
JRA-15846		Allow changing license on Data Import in new JIRA instance.	Resolved
JRA-15872		"Browse Project" URL doesn't include current project	Resolved
JRA-15886		Add logging notification for index optimization events	Resolved
JRA-15920		Include warning in EAR/WAR documentation not to edit anything directly on the application server	Resolved
JRA-15962		Upgrade JIRA to Plugins 2.x	Resolved
JRA-15991		Merge translations files into one to make translating JIRA easier!	Resolved
JRA-16058		Aggressive locking in JiraCachingPropertySet causes high contention	Resolved
JRA-16113		Do not show negative values on Y axis in Created vs. Resolved chart	Resolved
JRA-16122		HTTP Basic auth should be enabled by default	Resolved
JRA-16138		Anonymous users should not be considered to "own" all anonymous comments.	Resolved
JRA-16210		Display issue count on JQL execution	Resolved
JRA-16211		Enter / return should execute JQL	Resolved
JRA-16253		Source Build documentation is out of date and incomplete	Resolved
JRA-16276		Adjust colours of Resoltion date chart to be more distinshable for the colour blind	Resolved
JRA-16278		Add ability to search for versions using regex or similar	Resolved
JRA-16379		Weblogic Deployment descriptor (weblogic.xml) has changed for Weblogic 9.x	Resolved
JRA-16424		log4j output should contain more information	Resolved
JRA-16443		Create a jira.field.resolution.include transition attribute	Resolved

JRA-16510	Update to jQuery 1.3.2	Resolved
JRA-16522	Searching according to multiple assignees should be provided.	Resolved
JRA-16661	No way to cancel the "Project avatar" dialog	Resolved
JRA-16698	Have the ability to log all SQL statements issued by JIRA and also have a callback for timing purposes	Resolved
JRA-16744	Improve the performance of checking if a user belongs to a particular group.	Resolved
JRA-16793	A new section "JIRA Configuration" is needed in System Info page	Resolved
JRA-16838	Ensure Save button is disabled after submitting on the chart popup	Resolved
JRA-16839	Add nicer dashboard tabs	Resolved
JRA-16846	Allow for Pluggable Decorators in JIRA	Resolved
JRA-16870	Improve multi-threaded liveness of FieldLayoutManager under load	Resolved
JRA-17025	Link to the JIRA Knowledge Base in the Apache docs	Resolved
JRA-17128	Profiling document broken link	Resolved
JRA-17215	Environment field is missing from the bulk operations screen	Resolved
JRA-17217	French translation for "Road Map"	Resolved
JRA-17296	Add attribute for hidding a gadget when not logged in	Resolved
JRA-17314	Need a way to use the WebResourceManager to include JS/CSS for project tab panels and portlets	Resolved
JRA-17324	Make browse project/component/version use cached url for project avatar	Resolved
JRA-17361	Style gadget mini-messages to be more atlassian like	Resolved
JRA-17391	JIRA_HOME path in windows needs to be specified using backslash(or as Mac) and not as default windows way. Needs to document it to avoid confusion.	Resolved
JRA-17404	Improve logging/UI when plugins can't be loaded.	Resolved
JRA-17412	Ability for support to easily tell if a patch has been applied	Resolved
JRA-17429	JIRA should only persist a plugin as disabled if it was explicitly disabled by the user. If it got disabled because it was invalid, then JIRA should try to enable it on restart.	Resolved
JRA-17474	Choosing an non-existing drive as destination directory for windows installer give wrong error message	Resolved
JRA-17483	Need to add info about jira.home to README files in top directory	Resolved
JRA-17496	re-write dashboard client-side	Closed
JRA-17515	Put the JQL slow log into its own file.	Resolved
JRA-17562	Performance Improvements for JIRA v4.0	Resolved

JRA-17674		Issue summary page: Please duplicate link "Manage Attachments" under section "Image Attachments"	Resolved
JRA-17682		Add a warning to the reports documentation.	Resolved
JRA-17698		Remove dependency on backport.util.concurrent	Resolved
JRA-17756		Remove DWR from JIRA	Resolved
JRA-17779		JQL reserve words should be mention in documentation	Resolved
JRA-17797		JQL: Some points to add in documentation of JQL	Resolved
JRA-17916		Update JAC hardware spec on Requirements page	Resolved
JRA-17950		Instructions for deleting an issue type are too vague, and docs do not further explain them	Resolved
JRA-17978		Search sort order doesn't persist when searching on free text	Resolved
JRA-18017		Footer improvements - like Bamboo	Resolved
JRA-18073		Create issue button should be aware of the current project	Resolved
JRA-18101		LDAP Integration document is confusing about what order passwords will be checked.	Resolved
JRA-18102		JQL: Error message can be improved for date field when user doesn't put quotes for value	Resolved
JRA-18105		add documentation on JQL "autocomplete"	Resolved
JRA-18110		Tool tip text for "Manage dashboard" has unecessary spaces between words	Resolved
JRA-18133		Upgrade to the latest version of Seraph and Trusted Applications library	Resolved
JRA-18145		In order for charts to appear in the charting popup, they should be in both categories JIRA and Charts	Resolved
JRA-18147		on "General Config" screen, change "JQL Auto-complete Disabled" to just "JQL Auto-complete" (as per "Issue Picker Auto-complete")	Resolved
JRA-18165		JIRA 4.0 GUI comments	Resolved
JRA-18225		It would be cool to have the operations (save, save as, etc) in the advanced navigator view so you do not have to go to the view tab	Resolved
JRA-18228		Per-user JQL autocomplete setting	Resolved
JRA-18232		It will be great if we can limit the number of favourite filters in issue drop down to 5	Resolved
JRA-18236		JQL History links should be middle clickable	Resolved
JRA-18237		The error message 'Query is too complex to display in the Issue Navigator edit controls' should be changed to "Query is too complex to display in Simple mode"	Resolved

^Top

JIRA 4.0 Beta 3 Release Notes

August 27, 2009

JIRA 4.0 Beta 3 is a public development release leading up to **JIRA 4.0**. For all production use and testing of JIRA, please use the latest

official release.

A **Beta release** is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release.

> **Do not use in production**
> Beta releases should not be used in production environments as they are not officially supported.

> **Please also take note of the following information:**
>
> - **Beta releases are not safe** — Beta releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
>   - Features in development releases may be incomplete, or may change or be removed before the next full release.
> - **No upgrade path** — Because Beta releases represent work in progress, we **cannot** provide a supported upgrade path between Beta releases, or from any Beta to the eventual final release. Thus, any data you store in a JIRA Beta release may not be able to be migrated to a future JIRA release.

> It is not possible to upgrade JIRA 4.0 Beta 1 or 2 data to Beta 3. The data needs to come from an already released JIRA version (for example, JIRA 3.13.5).

> The **only** plugin that is compatible with JIRA 4.0 Beta is the latest JIRA Toolkit. Do not install any other plugins.

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

Highlights of JIRA 4.0 Beta 3:

- Advanced Searching
- Dashboard Gadgets
- Activity Stream
- Issue Actions in the Issue Navigator
- Charting Now Comes Standard
- New-look "Browse Project"
- Project Icons
- New-look Header
- Default Unit for Time Tracking
- "History" is now permanent
- Engine Room
- Plus over 450 other fixes and improvements

Thank you for your interest in JIRA 4.0 Beta 3

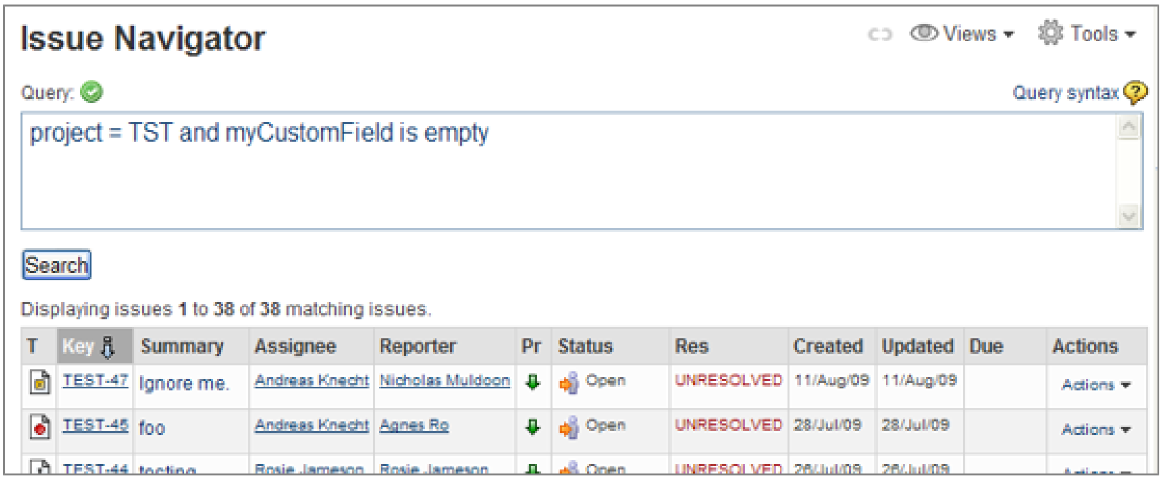
Download Beta

Installing/Upgrading to JIRA 4.0
JIRA 4.0 Beta 3 can be downloaded here. Before upgrading, please refer to the JIRA 4.0 Upgrade Guide. You will also need to go to my.atlassian.com and generate a "**JIRA 4 Evaluation**" license, as any existing 3.x license files will not work with 4.0 Beta 3.

Highlights of JIRA 4.0 Beta 3

Advanced Searching

The new advanced search (JQL) provides support for logical operations, including AND, OR, NOT, NULL, EMPTY --- even on custom fields:



For more on the new JQL search syntax, please see the documentation.

^Top

2

Dashboard Gadgets

The new-look JIRA dashboard not only looks awesome: it now uses industry-standard 'gadgets'. So you can add external gadgets to your JIRA dashboard, as well as displaying JIRA gadgets in other places (such as iGoogle).

You can easily customise your dashboard by choosing a different layout, adding more gadgets, dragging the gadgets into different positions, and changing the look of individual gadgets.

What's happened to your favourite JIRA portlets? Don't worry: every portlet that previously shipped with JIRA has been converted to a 'legacy gadget'. And if you are a plugin developer and have created your own portlets, see the instructions for converting your portlets to gadgets.

The following gadgets are available in Beta 3:

- 'Activity Stream' gadget (see below)
- 'Admin' gadget
- 'Bamboo Plan Summary' gadget*
- 'Bamboo Status' gadget*
- 'Crucible Charting' gadget
- 'Create Issue' gadget
- 'Favourite Filters' gadget
- 'Filter Results' gadget
- 'FishEye Charting' gadget
- 'Introduction' gadget
- 'Issue Completed This Iteration' gadget
- 'Login' gadget
- 'Quicklinks' gadget
- 'Voted Issues' gadget

* Requires Bamboo 2.3.2 Beta 1 or later.

^Top

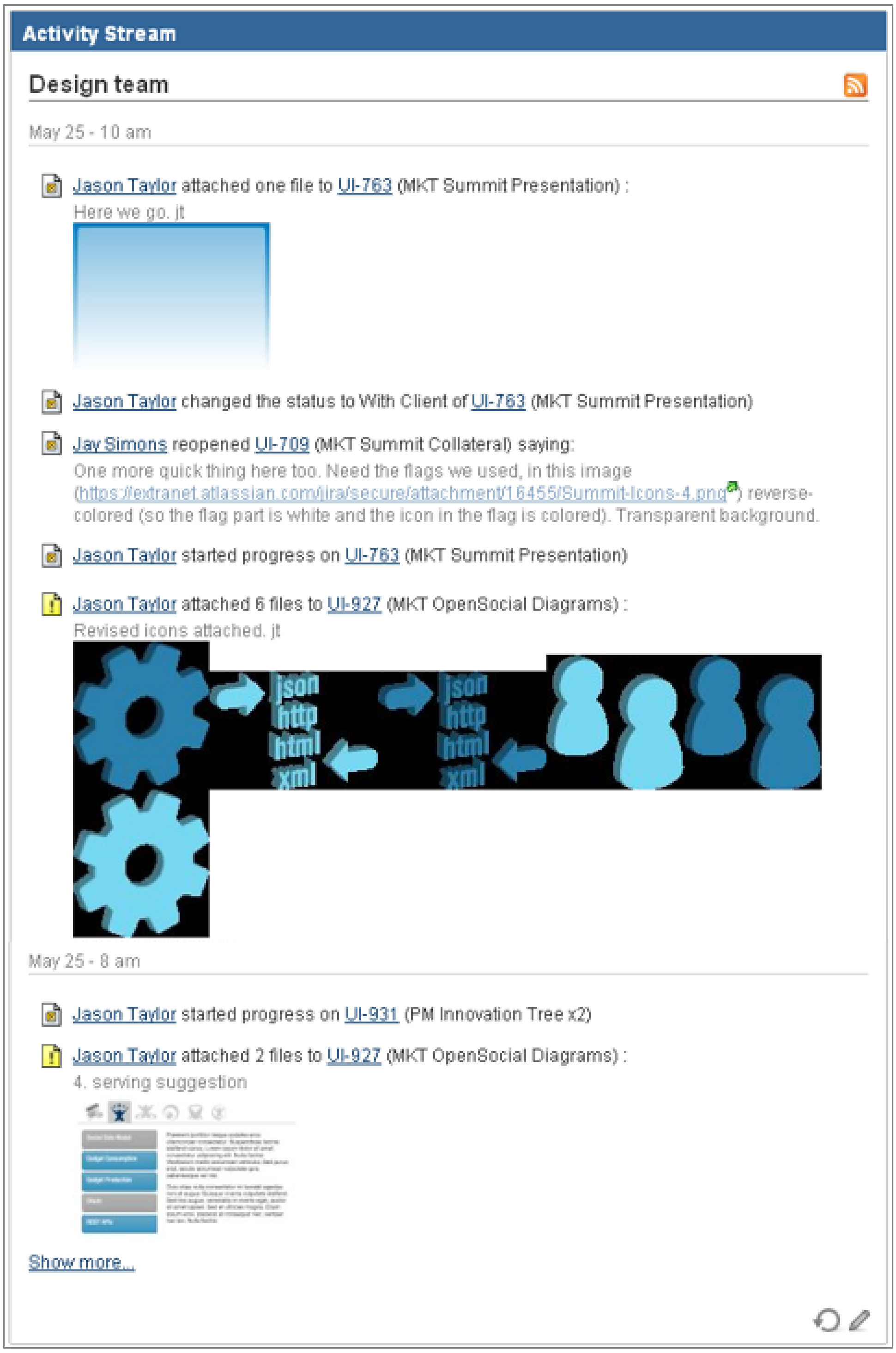
3

Activity Stream

The new '**Activity Stream**' gadget displays a summary of the latest activity in JIRA projects (and/or by particular people) in which you are interested.

The '**Activity Stream**' gadget also provides an RSS feed, allowing you to create very specific RSS feeds of only the information that is most relevant to you.

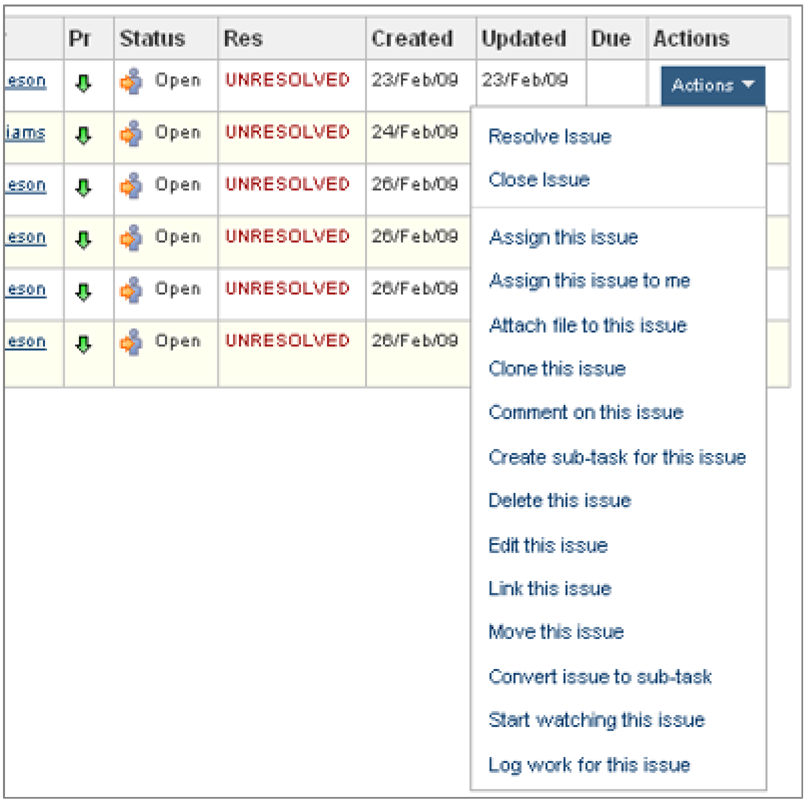
See the documentation for more details.



^Top

Issue Actions in the Issue Navigator

By popular request, issues can now be actioned directly from the Issue Navigator:



The "Actions" menu is also available for the list of sub-tasks within an issue.
^Top

5

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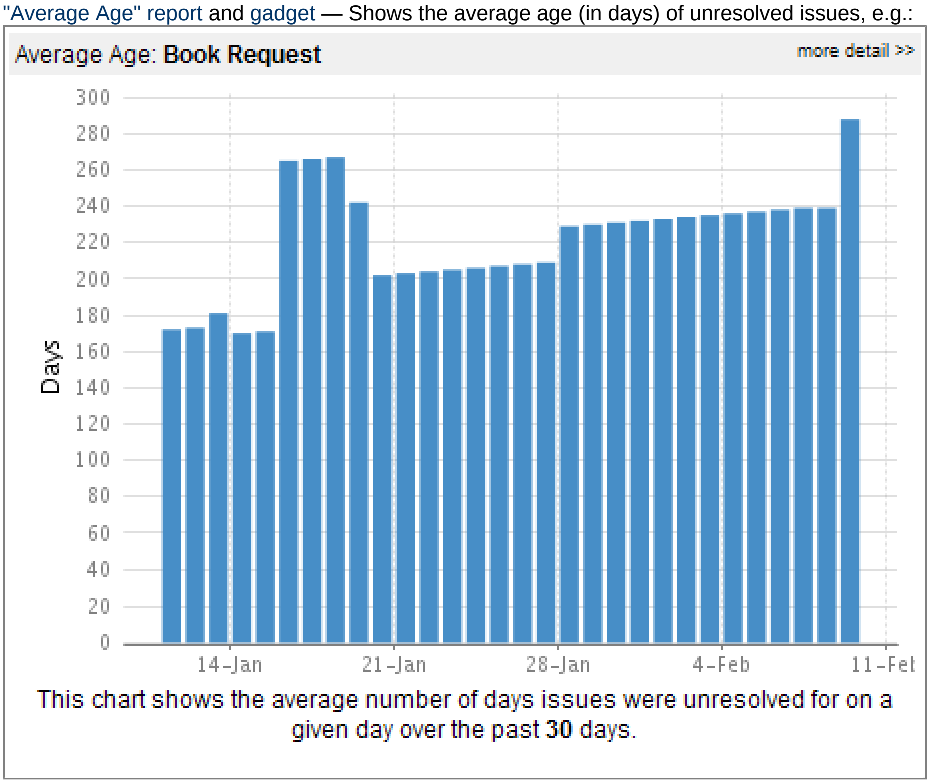
- "Average Age" report and gadget — Shows the average age (in days) of unresolved issues, e.g.:



- "Created vs Resolved Issues" report and gadget — Shows the number of issues created vs number of issues resolved over a given period of time.

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Also, the "Resolved" field from the Charting plugin is now part of JIRA, so every issue now automatically has its resolution date recorded.

^Top

6

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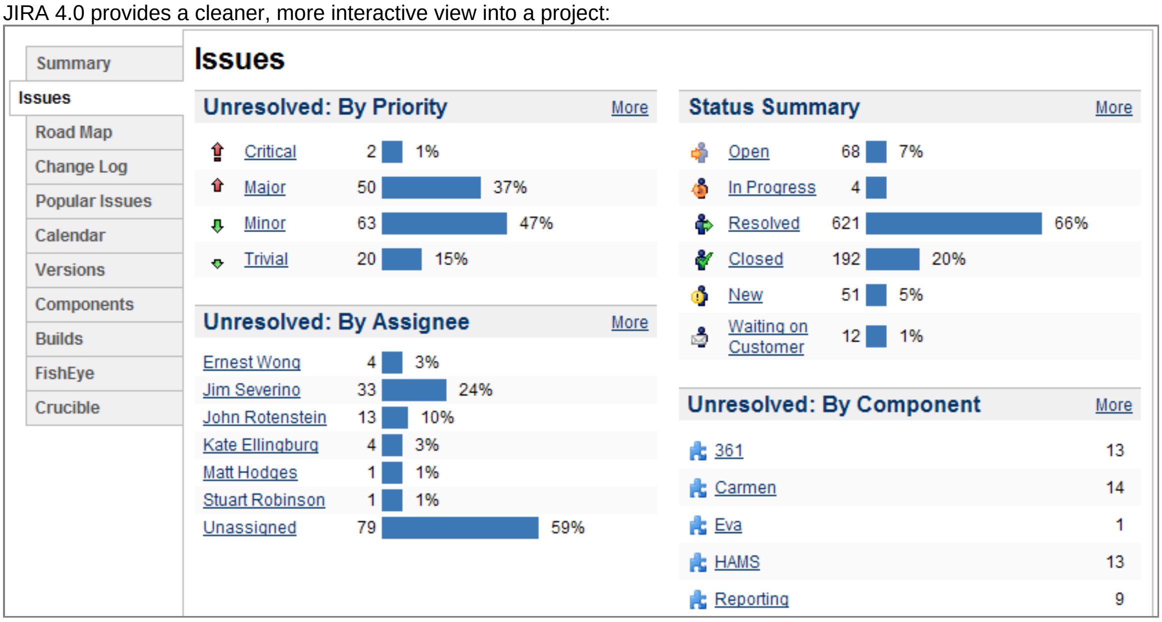
JIRA 4.0 provides a cleaner, more interactive view into a project:



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^Top

7

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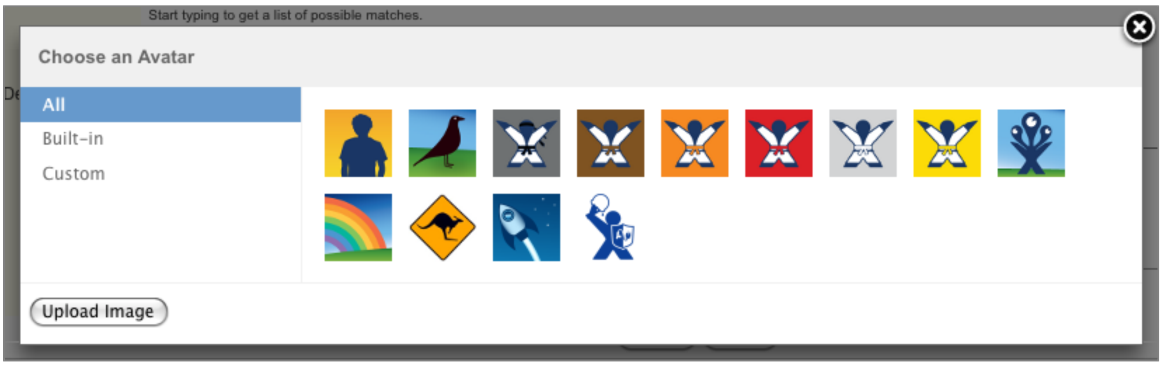
You can now give your project a visual identity, thanks to the introduction of project icons ('avatars'):



^Top

8

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The new-look JIRA header gives you quick access to all the most commonly-used functions. Creating an issue just got super-fast!

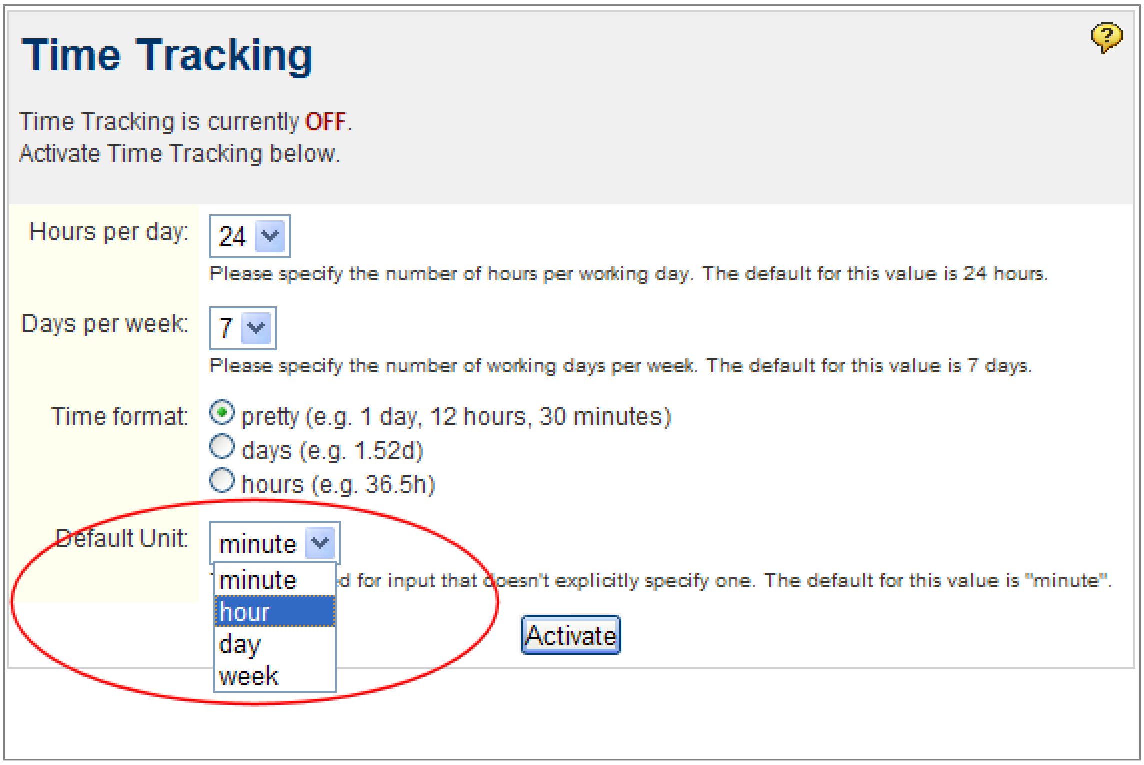
Click to zoom in:

If you prefer keystrokes rather than mouse-clicks, you'll be pleased to know that you can use your keyboard to navigate the new header menus.
^Top

9

Default Unit for Time Tracking

You can now specify your preferred **Default Unit** (minutes/hours/days/weeks) for your JIRA system. This will be applied whenever users log work on an issue without specifying a unit.



^Top

10

"History" is now permanent

Your list of recently-viewed issues is now stored in JIRA's database — so it's available after you log out and back in, even if you use a different machine.

^Top

11

Engine Room

Beyond the 'Back' Button

When navigating away from a page where you have modified data, you will be prompted to see if you would like to save the data or discard your changes (see JRA-14911).

Index Queue

Index updates are now put in a queue. So even if the update takes longer than 30 seconds, the operation remains on the queue and is not lost. (See JRA-14220.)

^Top

12

Plus over 450 other fixes and improvements

Click here for full list.

JIRA Issues (200 issues)				
Key	Type	Summary	Priority	Status
JRA-1538		Filter on Versions and Components across Projects		Resolved
JRA-1579		Create a portlet for the recent history		Resolved
JRA-2033		Add an RSS feed query for comments to individual issues		Resolved
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JRA-2916		Allow Previous version searching		Resolved
JRA-2925		Can't filter by Security Level		Resolved
JRA-3206		View issues without an estimate		Resolved
JRA-3624		released/unreleased version filter		Resolved
JRA-4059		Record last login time for a user		Resolved
JRA-5383		My Votes and My Watches as filters		Resolved
JRA-7551		Provide capability to find issues by resolution date		Resolved
JRA-7626		Build search queries remotely		Resolved
JRA-7772		Ability to create advanced queries to search across all data		Resolved
JRA-8159		Add ability to issue navigator to find all issues linked to x issue - with option to constrain by link		

		type	Resolved
JRA-8527		Put task actions directly in filter output	Resolved
JRA-8606		Need a way to find watched issues	Resolved
JRA-8852		Sort filter results by non-visible field	Resolved
JRA-8973		RSS of Project Changes	Resolved
JRA-9551		Search for all Sub-Tasks of one given issue	Resolved
JRA-9651		User Activity Log	Resolved
JRA-10245		Ability to filter/view Issues upon "Versions" across multiple "Projects"	Resolved
JRA-10443		"Not Assigned to User" criteria in filters	Resolved
JRA-10603		MultipleSelect searcher for cascading selection field	Resolved
JRA-12921		Ability to export Watched Issues to excel	Resolved
JRA-14613		Each project can have its own logo	Resolved
JRA-14616		Ability to query for issues that you are not watching	Resolved
JRA-14983		Fetch only updated or changed issues	Resolved
JRA-15575		Test and confim JIRA is compatible with Microsoft SQL Server 2008	Resolved
JRA-16067		Provide field definition in XML issue view URL to customize XML view	Resolved
JRA-16120		Dashboard rewrite	Resolved
JRA-16509		Check for javascript enabled in browser	Resolved
JRA-16805		Convert legacy portlets to Gadgets	Resolved
JRA-16807		Convert Intro Portlet	Resolved
JRA-16808		Convert Quicklinks portlet	Resolved
JRA-16809		Convert Favourite Fitlers	Resolved
JRA-16811		Convert Pie Chart Portlet	Resolved
JRA-16903		Convert CreatedVsResolved Chart Portlet	Resolved
JRA-16905		Convert Average Age Chart	Resolved
JRA-16914		Convert Recently Created Portlet	Resolved
JRA-16916		Convert Time Since Chart	Resolved

JRA-16920		Add filter option for subtasks of a particular issue	Resolved
JRA-16926		Implement OAuth SPI in JIRA	Resolved
JRA-16931		Convert Saved Filter Portlet	Resolved
JRA-16978		Option "Number to Show" in Filter Statistics Portlet to limit numer of rows displayed	Resolved
JRA-17090		Convert Admin Portlet to gadget	Resolved
JRA-17094		Convert Bugzilla portlet	Resolved
JRA-17095		Convert Project/Projects/Project Table portlets into a gadget	Resolved
JRA-17096		Convert Project / Filter stats Portlet to gadget	Resolved
JRA-17101		Convert TwoDimensionalStatsPortlet to gadgets	Resolved
JRA-17112		Convert Roadmap Portlet to gadgets	Resolved
JRA-17133		Convert Resolution Time Chart to gadgets	Resolved
JRA-17140		Convert Assign To Me portlet to gadget	Resolved
JRA-17141		Convert Voted For Portlet to gadget	Resolved
JRA-17142		Convert Watching Portlet to gadget	Resolved
JRA-17143		Convert In-progress portlet to gadget	Resolved
JRA-17182		Allow REST plugins to be decorated	Resolved
JRA-17337		New Header for JIRA 4.0	Resolved
JRA-17355		Need provision to search multiple group	Resolved
JRA-17763		JQL: It will great if user can use E-mail ID's for searching in Assignee and reporter fields	Resolved
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JRA-3451		Enable filtering by Date Resolved	Resolved
JRA-3464		allow filtering by project category	Resolved
JRA-4227		Recent History Popup - persistance across sessions & more data	Resolved
JRA-4605		new filter criteria: add NOT to all existing criteria	Resolved
JRA-4688		Browse Project: Within the tab panel, if components are hidden - the version info appears to be right aligned.	Resolved
JRA-5121		Filter Portlet with configurable columns	Resolved
JRA-5152		Show issue linked to another issue.	Resolved
JRA-5310		Watchlist should be exportable	Resolved
JRA-5435		Issue actions and operations on Issue Navigator	Resolved
JRA-5560		Improved query functionality	Resolved
JRA-5798		Project Portlet: needs multi project selection	Resolved
JRA-5844		allow multiple users when creating filters	Resolved
JRA-5965		Allow configure units of time tracking	Resolved
JRA-6010		Thought processing	Resolved
JRA-6170		Radio Buttons should support Select List Searcher template	Resolved
JRA-6180		Search for a custom field that is empty	Resolved
JRA-6527		Allow filters to be built upon other shared filters (combined filters)	Resolved
JRA-7068		Allow for list of issues to be saved as a filter	Resolved
JRA-7909		Search/ filter for "empty" fields	Resolved
JRA-8487		Bad logging from uk.ltd.getahead.dwr.util.CommonsLoggingOutput on startup	Resolved
JRA-8686		Allow searching of issues by Full Name for all user fields	Resolved

JRA-8758	Cannot create filter for multiple projects all issues in version "Released Versions"	Resolved
JRA-8806	Allow "Released" & "Unreleased" Version search accross multiple projects	Resolved
JRA-9115	Ability to search for issues with no due date associated	Resolved
JRA-9278	New Field "Resolution Date" automatically filled with date of setting resolution	Resolved
JRA-9658	Minor css bug (cursor)	Resolved
JRA-9823	Allow to optionally clone an issue's attachments when cloning an issue.	Resolved
JRA-10405	Attachment ordering	Resolved
JRA-10492	Search for several users as Assignee or Reporter	Resolved
JRA-10644	Make filters more accessible	Resolved
JRA-10658	More columns on Dashboards	Resolved
JRA-11134	Allow setting of column order/sort with no issues in result set	Resolved
JRA-12177	Time tracking by using setting "hours" - edit issue shows "Original/Remaining Estimate" -field value in "pretty" mode	Resolved
JRA-12596	Enable cross-project filtering on special versions	Resolved
JRA-12656	Add paging/optimization for Change Log scope	Resolved
JRA-13426	Next/previous version links for 'Browse Version' screen	Resolved
JRA-13745	Clean up top toolbar by moving Profile link to username and removing Filters link	Resolved
JRA-13850	Servlet Content Listeners should implement the catch / log / rethrow pattern	Resolved
JRA-14220	Ensure the index optimize operation does not cause index lock timeouts	Resolved
JRA-14419	Warning for Websphere installation on validating entity-engine.xml	Resolved
JRA-14513	JIRA Soap Service log and Access filter log footprint needs improving - Invoked Method would be handy	Resolved
JRA-14516	JIRA upgrade page should warn about possible character encoding issue if JIRA is moved between two servers.	Resolved
JRA-14598	Add access key for administer project from browse project	Resolved
JRA-14701	OSPropertyText table should have the value column set to extremely-long datatype	Resolved
JRA-14826	Dashboards with a large number of portal pages cause the page to become too wide	Resolved
JRA-15018	Improved SOAP and HTTP access logging	Resolved
JRA-15266	Would prefer if the "Worklog" heading under "Operations" when viewing an issue were a link, like the rest of the operations.	Closed
JRA-15445	RPC plugin needs to be cleaned up	Resolved

JRA-15517	Upgrade JIRA to use the latest version of Lucene indexing framework - v2.3.2	Resolved
JRA-15543	Show release date next to version name in the list of versions on Browse Project screen	Resolved
JRA-15646	Convert JIRA to jQuery	Resolved
JRA-15649	Sort list of plugins in Admin section alphabetically	Resolved
JRA-15665	Address issue of plugins pushing filter/report panel off screen	Resolved
JRA-15666	Add project information to the issue XML view	Resolved
JRA-15700	Created VS Resolved cumulative + individual graphs' Y axis should should be independent	Resolved
JRA-15702	Migrate to licensing 2.0	Resolved
JRA-15732	Update email documentation to highlight that OutOfMemoryError can stop email processing	Resolved
JRA-15846	Allow changing license on Data Import in new JIRA instance.	Resolved
JRA-15872	"Browse Project" URL doesn't include current project	Resolved
JRA-15886	Add logging notification for index optimization events	Resolved
JRA-15920	Include warning in EAR/WAR documentation not to edit anything directly on the application server	Resolved
JRA-15962	Upgrade JIRA to Plugins 2.x	Resolved
JRA-15991	Merge translations files into one to make translating JIRA easier!	Resolved
JRA-16058	Aggressive locking in JiraCachingPropertySet causes high contention	Resolved
JRA-16113	Do not show negative values on Y axis in Created vs. Resolved chart	Resolved
JRA-16122	HTTP Basic auth should be enabled by default	Resolved
JRA-16138	Anonymous users should not be considered to "own" all anonymous comments.	Resolved
JRA-16210	Display issue count on JQL execution	Resolved
JRA-16211	Enter / return should execute JQL	Resolved
JRA-16253	Source Build documentation is out of date and incomplete	Resolved
JRA-16276	Adjust colours of Resoltion date chart to be more distinshable for the colour blind	Resolved
JRA-16278	Add ability to search for versions using regex or similar	Resolved
JRA-16379	Weblogic Deployment descriptor (weblogic.xml) has changed for Weblogic 9.x	Resolved
JRA-16424	log4j output should contain more information	Resolved
JRA-16443	Create a jira.field.resolution.include transition attribute	Resolved

JRA-16510		Update to jQuery 1.3.2	Resolved
JRA-16522		Searching according to multiple assignees should be provided.	Resolved
JRA-16661		No way to cancel the "Project avatar" dialog	Resolved
JRA-16698		Have the ability to log all SQL statements issued by JIRA and also have a callback for timing purposes	Resolved
JRA-16744		Improve the performance of checking if a user belongs to a particular group.	Resolved
JRA-16793		A new section "JIRA Configuration" is needed in System Info page	Resolved
JRA-16838		Ensure Save button is disabled after submitting on the chart popup	Resolved
JRA-16839		Add nicer dashboard tabs	Resolved
JRA-16846		Allow for Pluggable Decorators in JIRA	Resolved
JRA-16870		Improve multi-threaded liveness of FieldLayoutManager under load	Resolved
JRA-17025		Link to the JIRA Knowledge Base in the Apache docs	Resolved
JRA-17128		Profiling document broken link	Resolved
JRA-17215		Environment field is missing from the bulk operations screen	Resolved
JRA-17217		French translation for "Road Map"	Resolved
JRA-17296		Add attribute for hidding a gadget when not logged in	Resolved
JRA-17314		Need a way to use the WebResourceManager to include JS/CSS for project tab panels and portlets	Resolved
JRA-17324		Make browse project/component/version use cached url for project avatar	Resolved
JRA-17361		Style gadget mini-messages to be more atlassian like	Resolved
JRA-17391		JIRA_HOME path in windows needs to be specified using backslash(or as Mac) and not as default windows way. Needs to document it to avoid confusion.	Resolved
JRA-17404		Improve logging/UI when plugins can't be loaded.	Resolved
JRA-17412		Ability for support to easily tell if a patch has been applied	Resolved
JRA-17429		JIRA should only persist a plugin as disabled if it was explicitly disabled by the user. If it got disabled because it was invalid, then JIRA should try to enable it on restart.	Resolved
JRA-17474		Choosing an non-existing drive as destination directory for windows installer give wrong error message	Resolved
JRA-17483		Need to add info about jira.home to README files in top directory	Resolved
JRA-17496		re-write dashboard client-side	Closed
JRA-17515		Put the JQL slow log into its own file.	Resolved
JRA-17562		Performance Improvements for JIRA v4.0	Resolved

JRA-17674		Issue summary page: Please duplicate link "Manage Attachments" under section "Image Attachments"	Resolved
JRA-17682		Add a warning to the reports documentation.	Resolved
JRA-17698		Remove dependency on backport.util.concurrent	Resolved
JRA-17756		Remove DWR from JIRA	Resolved
JRA-17779		JQL reserve words should be mention in documentation	Resolved
JRA-17797		JQL: Some points to add in documentation of JQL	Resolved
JRA-17916		Update JAC hardware spec on Requirements page	Resolved
JRA-17950		Instructions for deleting an issue type are too vague, and docs do not further explain them	Resolved
JRA-17978		Search sort order doesn't persist when searching on free text	Resolved
JRA-18017		Footer improvements - like Bamboo	Resolved
JRA-18073		Create issue button should be aware of the current project	Resolved
JRA-18101		LDAP Integration document is confusing about what order passwords will be checked.	Resolved
JRA-18102		JQL: Error message can be improved for date field when user doesn't put quotes for value	Resolved
JRA-18105		add documentation on JQL "autocomplete"	Resolved
JRA-18110		Tool tip text for "Manage dashboard" has unecessary spaces between words	Resolved
JRA-18133		Upgrade to the latest version of Seraph and Trusted Applications library	Resolved
JRA-18145		In order for charts to appear in the charting popup, they should be in both categories JIRA and Charts	Resolved
JRA-18147		on "General Config" screen, change "JQL Auto-complete Disabled" to just "JQL Auto-complete" (as per "Issue Picker Auto-complete")	Resolved
JRA-18165		JIRA 4.0 GUI comments	Resolved
JRA-18225		It would be cool to have the operations (save, save as, etc) in the advanced navigator view so you do not have to go to the view tab	Resolved
JRA-18228		Per-user JQL autocomplete setting	Resolved
JRA-18232		It will be great if we can limit the number of favourite filters in issue drop down to 5	Resolved
JRA-18236		JQL History links should be middle clickable	Resolved
JRA-18237		The error message 'Query is too complex to display in the Issue Navigator edit controls' should be changed to "Query is too complex to display in Simple mode"	Resolved

^Top

JIRA 4.0 Beta 2 Release Notes

July 23, 2009

JIRA 4.0 Beta 2 is a public development release leading up to **JIRA 4.0**. For all production use and testing of JIRA, please use the latest

official release.

A **Beta release** is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release.

Do not use in production
Beta releases should not be used in production environments as they are not officially supported.

Please also take note of the following information:

- **Beta releases are not safe** — Beta releases are snapshots of the ongoing JIRA development process. As such:
  - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
  - Features in development releases may be incomplete, or may change or be removed before the next full release.
- **No upgrade path** — Because Beta releases represent work in progress, we **cannot** provide a supported upgrade path between Beta releases, or from any Beta to the eventual final release. Thus, any data you store in a JIRA Beta release may not be able to be migrated to a future JIRA release.

It is not possible to upgrade JIRA 4.0 Beta 1 data to Beta 2. The data needs to come from an already released JIRA version (for example, JIRA 3.13.5).

The **only** plugin that is compatible with JIRA 4.0 Beta is the latest JIRA Toolkit. Do not install any other plugins.

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

Highlights of JIRA 4.0 Beta 2:

- Advanced Searching
- Dashboard Gadgets
- Activity Stream
- Issue Actions in the Issue Navigator
- Charting Now Comes Standard
- New-look "Browse Project"
- Project Icons
- New-look Header
- Default Unit for Time Tracking
- "History" is now permanent
- Engine Room
- Plus over 250 other fixes and improvements

Thank you for your interest in JIRA 4.0 Beta 2

Download Beta

Known Issues

Upgrading to JIRA 4.0
JIRA 4.0 Beta can be downloaded here. Before upgrading, please refer to the JIRA 4.0 Upgrade Guide.

Known Issues

- **Supported browsers:** For optimal experience with JIRA 4.0 Beta 2, please use Firefox 3.x. Support for other browsers will be added prior to the launch of JIRA 4.0.
- **Portlet-to-gadget upgrade task:** This has not yet been implemented. Your existing portlets will be displayed in legacy mode.
  ^Top

Highlights of JIRA 4.0 Beta 2

Advanced Searching

The new advanced search (JQL) provides support for logical operations (including AND/OR/NOT/NULL, even on custom fields) when filtering issues:

For more on the new JQL search syntax, please see the documentation.

^Top

Dashboard Gadgets

The new-look JIRA dashboard now uses industry-standard 'gadgets'. So you can add external gadgets to your JIRA dashboard, as well as displaying JIRA gadgets in other places (such as iGoogle).

What's happened to your favourite JIRA portlets? Don't worry: every portlet that previously shipped with JIRA has been converted to a 'legacy gadget'. And if you are a plugin developer and have created your own portlets, see the instructions for converting your portlets to gadgets.

The following gadgets are available in Beta 2:

- 'Activity Stream' gadget (see below)
- 'Admin' gadget
- 'Create Issue' gadget
- 'Favourite Filters' gadget
- 'Filter Results' gadget
- 'Introduction' gadget
- 'Issue Completed This Iteration' gadget
- 'Login' gadget
- 'Quicklinks' gadget
- 'Voted Issues' gadget

^Top

Activity Stream

The new '**Activity Stream**' gadget displays a summary of the latest activity in JIRA projects (and/or by particular people) in which you are interested.

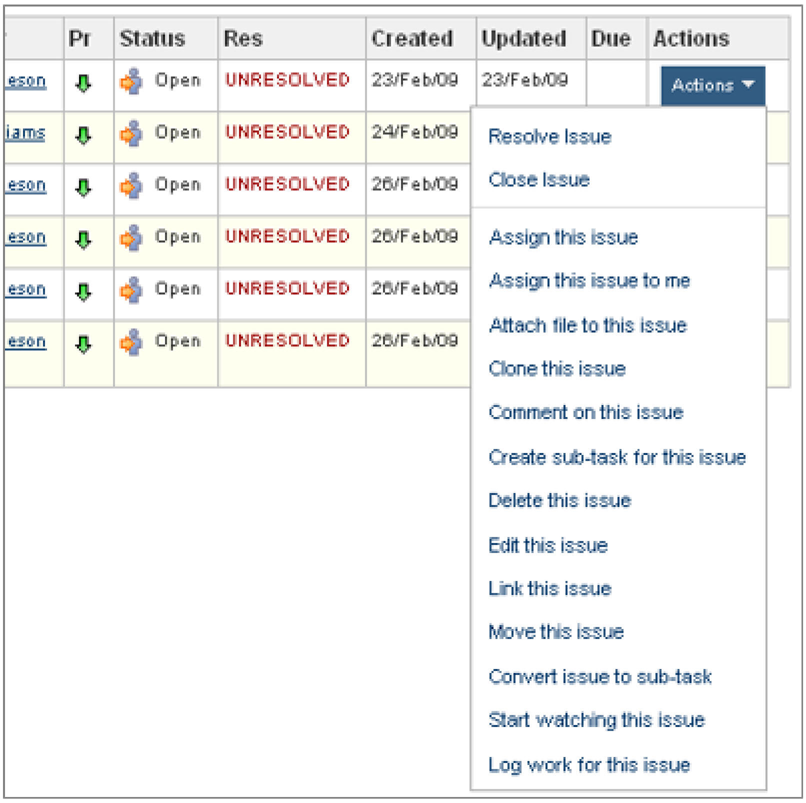
The '**Activity Stream**' gadget also provides an RSS feed, allowing you to create very specific RSS feeds of only the information that is most relevant to you.

See the documentation for more details.

^Top

Issue Actions in the Issue Navigator

By popular request, issues can now be actioned directly from the Issue Navigator:

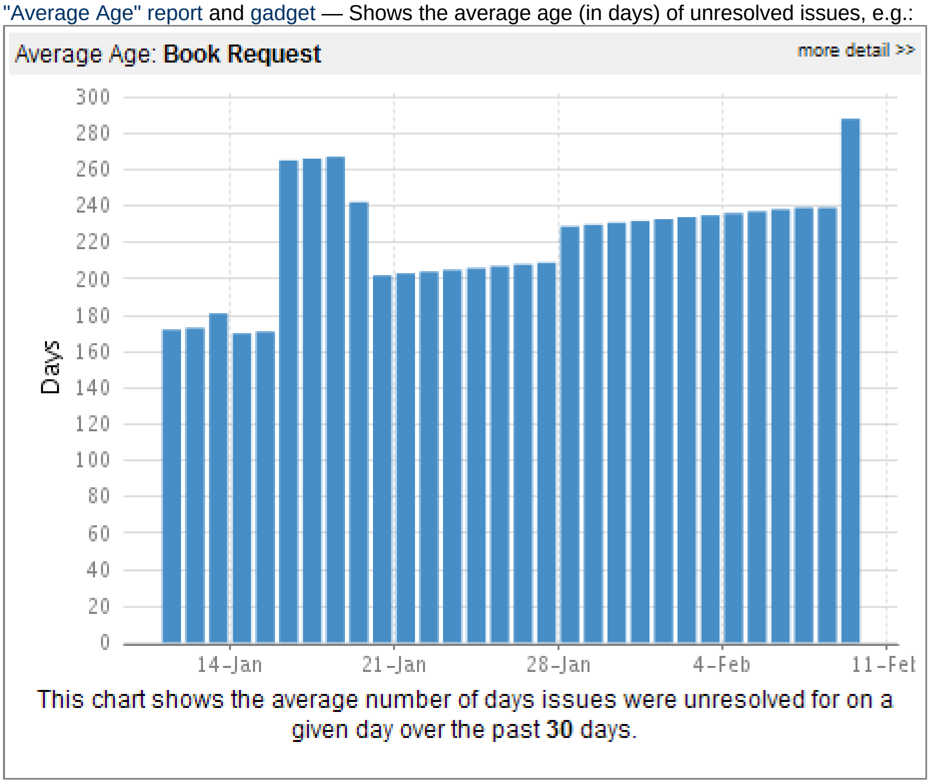


The "Actions" menu is also available for the list of sub-tasks within an issue.
^Top

Charting Now Comes Standard

The following reports and gadgets from the Charting plugin have now been integrated into JIRA:

- "Average Age" report and gadget — Shows the average age (in days) of unresolved issues, e.g.:



- "Created vs Resolved Issues" report and gadget — Shows the number of issues created vs number of issues resolved over a given period of time.

- "Pie Chart" report and gadget — Shows the search results from a specified issue filter (or project) in a pie-chart, based on a statistic of your choice.
- "Recently Created Issues" report and gadget — Shows the rate at which issues are being created.
- "Resolution Time" report and gadget — Shows the average time taken to resolve issues.
- "Time Since Issues" report and gadget — Shows the number of issues for which your chosen date field (e.g. 'Created') was set on a given date.

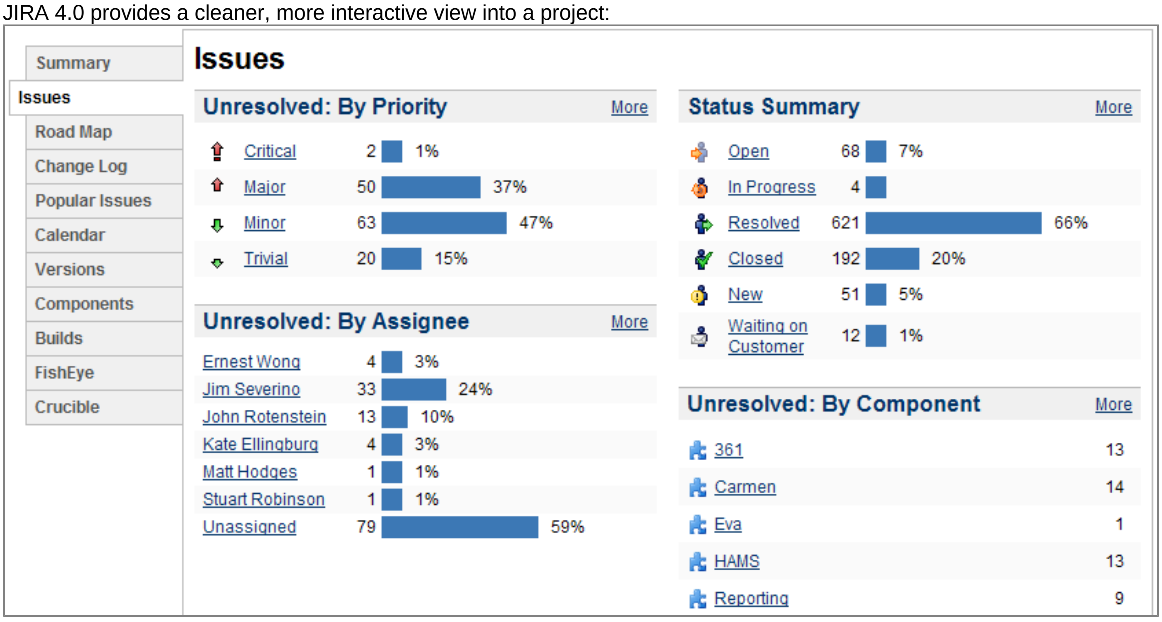
Also, the "Resolved" field from the Charting plugin is now part of JIRA, so every issue now automatically has its resolution date recorded.

^Top

6

New-look "Browse Project"

JIRA 4.0 provides a cleaner, more interactive view into a project:

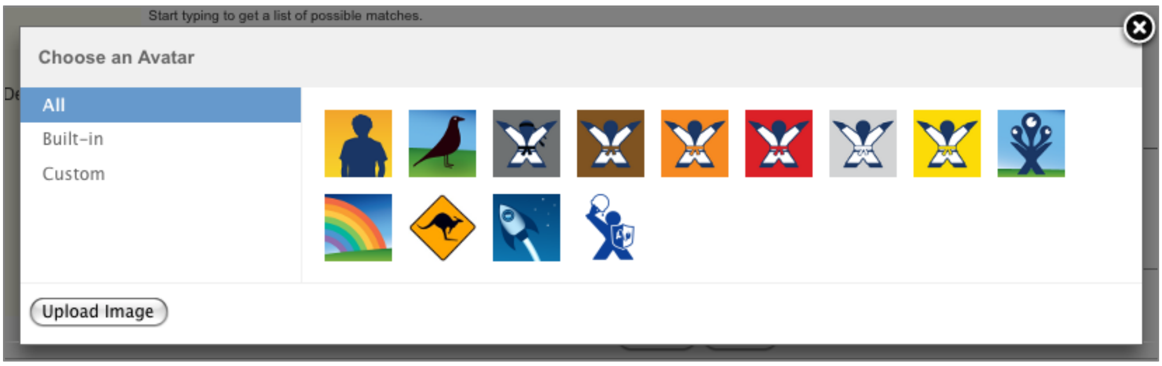


See the documentation for more about browsing projects, versions and components.
^Top

7

Project Icons

You can now give your project a visual identity, thanks to the introduction of project icons ('avatars'):



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8

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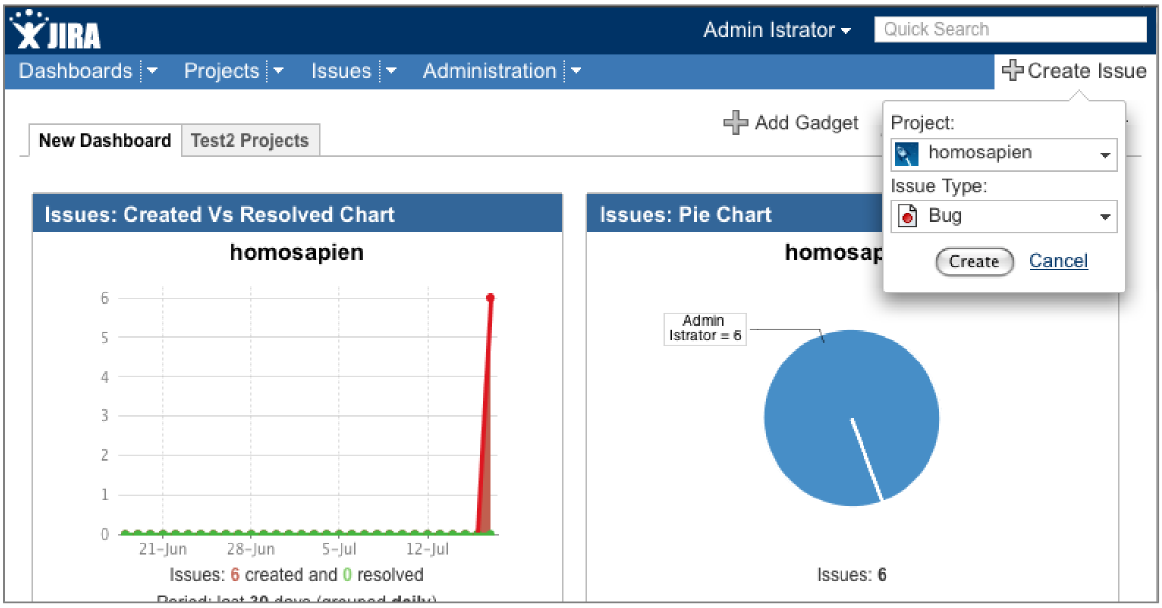
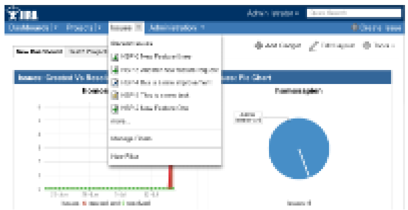


Click to zoom in:





The new 'Dashboards' menu
The new 'Projects' menu
The new 'Issues' menu



The new 'Admin' menu
The new 'User' menu
The new 'Create Issue'
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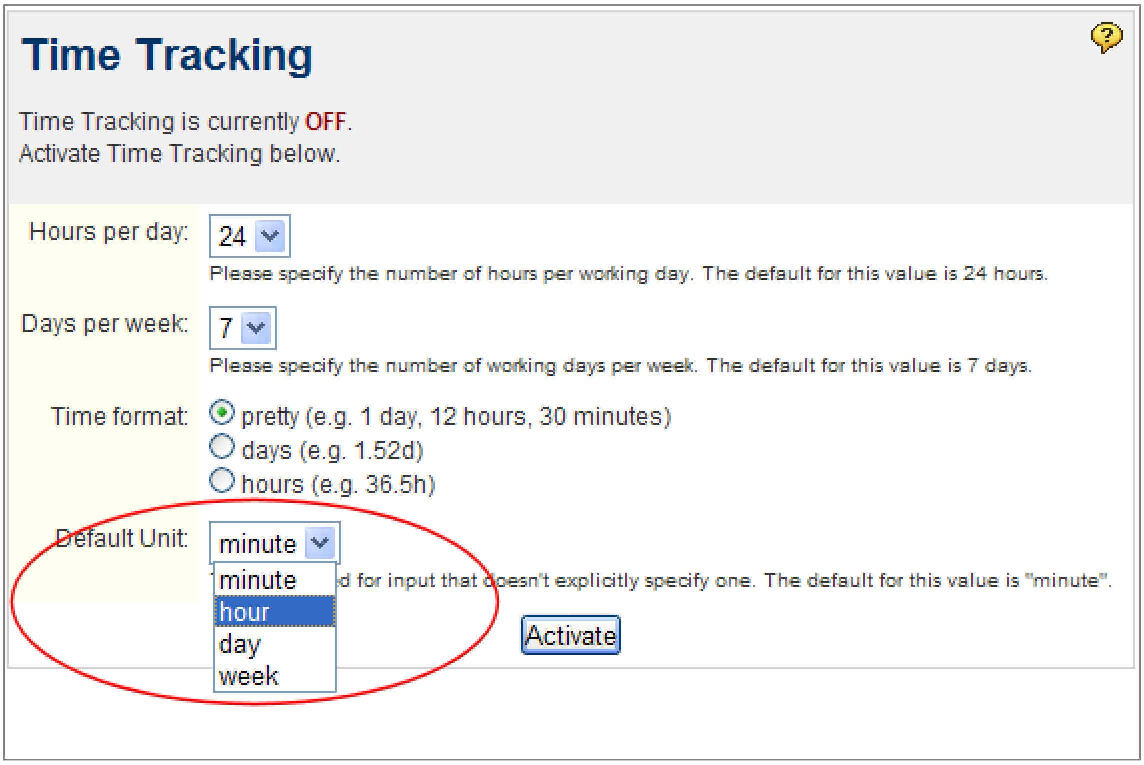

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JRA-12200		Reporter system field throws ClassCastException after populateFromIssue() and validateFromParams()		Resolved
JRA-12525		Emails containing attachments with non-ASCII names lost		Resolved
JRA-12596		Enable cross-project filtering on special versions		Resolved
JRA-12656		Add paging/optimization for Change Log scope		Resolved
JRA-12816		OutOfMemoryError PermGen Space on Windows Func Test (under VMWare)		Resolved
JRA-12921		Ability to export Watched Issues to excel		Resolved
JRA-12976		AbstractMessageHandler might not be removing spaces from email addresses before using them to determine if a user exists when creating an issue from an email		Resolved
JRA-13003		Moving portlet up reults in IndexOutOfBoundsException		Resolved
JRA-13011		Component of a subtask is still component of original project after moving an issue		Resolved
JRA-13035		CSV import can not import resolution date.		Resolved
JRA-13426		Next/previous version links for 'Browse Version' screen		Resolved
JRA-13625		Implicit profiling functionality broken		Resolved

JRA-13689	Saved filters reverted to "All projects" when we deleted a project contained		Resolved
JRA-13711	Printer icon on 'Issue Navigator' does not show the Printable View of the issue navigator as it did in JIRA 3.6		Resolved
JRA-13745	Clean up top toolbar by moving Profile link to username and removing Filters link		Resolved
JRA-13793	Confusing "The 'Project Information' panel is not available" message when fields are disabled		Resolved
JRA-13801	Call method addWorklogAndAutoAdjustRemainingEstimate, the soap server reponse with this type IssueServiceImpl$RemoteWorklogImpl		Resolved
JRA-13850	Servlet Content Listeners should implement the catch / log / rethrow pattern		Resolved
JRA-14031	Form data lost when using back and forward web browser buttons		Resolved
JRA-14220	Ensure the index optimize operation does not cause index lock timeouts		Resolved
JRA-14416	Move Issue with SubTask between differents project, IssueType and SubIssueType		Resolved
JRA-14419	Warning for Websphere installation on validating entity-engine.xml		Resolved
JRA-14490	Deleting project can cause filter to select all projects		Resolved
JRA-14513	JIRA Soap Service log and Access filter log footprint needs improving - Invoked Method would be handy		Resolved
JRA-14516	JIRA upgrade page should warn about possible character encoding issue if JIRA is moved between two servers.		Resolved
JRA-14598	Add access key for administer project from browse project		Resolved
JRA-14613	Each project can have its own logo		Resolved
JRA-14616	Ability to query for issues that you are not watching		Resolved
JRA-14654	ColorPicker for LookAndFeel page does not work on all browsers		Resolved
JRA-14701	OSPropertyText table should have the value column set to extremely-long datatype		Resolved
JRA-14727	Cannot create a literal "backslash underscore" sequence		Resolved
JRA-14811	Deleting Group Does Not Remove Group From a Subscription		Resolved
JRA-14826	Dashboards with a large number of portal pages cause the page to become too wide		Resolved
JRA-14983	Fetch only updated or changed issues		Resolved
JRA-15018	Improved SOAP and HTTP access logging		Resolved
JRA-15112	Adding Update Issue Field workflow postfunction causes OutOfMemoryError		Resolved
JRA-15241	Single user picker field renrered incorrectly		Resolved
JRA-15247	Duplicate explanation of entityengine.xml in the upgrade guide.		Resolved
JRA-15254	Browse Project Panel: Do not show Closed UNRESOLVED issues as Open in the version list		Resolved

JRA-15266		Would prefer if the "Worklog" heading under "Operations" when viewing an issue were a link, like the rest of the operations.		Closed
JRA-15309		Wrong assignee drop-down list sorting with non-ascii characters		Resolved
JRA-15327		On the login page the message at the bottom is off center if an error is displayed		Resolved
JRA-15383		Documentation on Two Dimentional Statistics Filter Portlet needs to specify suported custom fields		Resolved
JRA-15445		RPC plugin needs to be cleaned up		Resolved
JRA-15484		Tokenizing java exceptions fails if the exception is terminated with a full-stop.		Resolved
JRA-15517		Upgrade JIRA to use the latest version of Lucene indexing framework - v2.3.2		Resolved
JRA-15543		Show release date next to version name in the list of versions on Browse Project screen		Resolved
JRA-15545		Export issues to Excel/Word format with non-ASCII filter name does not handle the file name properly		Resolved
JRA-15546		Versions no longer display descriptions when browsing project		Resolved
JRA-15548		If an attempt to get the Index lock times out, the indexing operation is discarded		Resolved
JRA-15564		JIRA displays error after a reindex.		Resolved
JRA-15575		Test and confim JIRA is compatible with Microsoft SQL Server 2008		Resolved
JRA-15625		It is possible to disable plugins that then render jira incapable of restarting		Resolved
JRA-15631		jelly with invalid variables script returns blank page to user		Resolved
JRA-15638		The new dropdown does not appear to render correctly under IE6/7		Resolved
JRA-15646		Convert JIRA to jQuery		Resolved
JRA-15649		Sort list of plugins in Admin section alphabetically		Resolved
JRA-15665		Address issue of plugins pushing filter/report panel off screen		Resolved
JRA-15666		Add project information to the issue XML view		Resolved
JRA-15669		Drag and drop behaviour doesn't work on Modify Issues Type Scheme page		Resolved
JRA-15700		Created VS Resolved cumulative + individual graphs' Y axis should should be independent		Resolved
JRA-15702		Migrate to licensing 2.0		Resolved
JRA-15723		Jelly AddComment tag changes the "updated" issue timestamp to execution script timestamp		Resolved
JRA-15732		Update email documentation to highlight that OutOfMemoryError can stop email processing		Resolved
JRA-15761		If issue key contains unicode characters, redirect on create issue doesn't work		Resolved
JRA-15846		Allow changing license on Data Import in new JIRA instance.		Resolved

JRA-15872	"Browse Project" URL doesn't include current project		Resolved
JRA-15882	Notification Schemes image highlights the wrong function		Resolved
JRA-15886	Add logging notification for index optimization events		Resolved
JRA-15920	Include warning in EAR/WAR documentation not to edit anything directly on the application server		Resolved
JRA-15927	Code samples on Web UI Plugin Module document are incorrect		Resolved
JRA-15962	Upgrade JIRA to Plugins 2.x		Resolved
JRA-15991	Merge translations files into one to make translating JIRA easier!		Resolved
JRA-16058	Aggressive locking in JiraCachingPropertySet causes high contention		Resolved
JRA-16067	Provide field definition in XML issue view URL to customize XML view		Resolved
JRA-16074	Incorrect error warning message on navigator summary		Resolved
JRA-16080	1px offset in Firefox		Resolved
JRA-16088	Created VS Resolved Issues Report contains Old Filtter / Project Picker		Resolved
JRA-16112	Bug in progressWorkflowAction method in SOAP		Resolved
JRA-16113	Do not show negative values on Y axis in Created vs. Resolved chart		Resolved
JRA-16120	Dashboard rewrite		Resolved
JRA-16122	HTTP Basic auth should be enabled by default		Resolved
JRA-16138	Anonymous users should not be considered to "own" all anonymous comments.		Resolved
JRA-16151	Colon : in custom field search causes searching of wrong field		Resolved
JRA-16175	JIRA issues macro does not work with 4.0-m1 on EACJ		Resolved
JRA-16210	Display issue count on JQL execution		Resolved
JRA-16211	Enter / return should execute JQL		Resolved
JRA-16253	Source Build documentation is out of date and incomplete		Resolved
JRA-16276	Adjust colours of Resoltion date chart to be more distinshable for the colour blind		Resolved
JRA-16278	Add ability to search for versions using regex or similar		Resolved
JRA-16316	Assigned To Me Portlet, selecting all columns to display causes error		Resolved
JRA-16339	The "Perm Gen" memory usage shown on the System Info page is incorrect.		Resolved
JRA-16351	Component plugin modules don't show up in plugins admin section in JIRA 4.0		Resolved

JRA-16363	ServiceProxyDestroyedException when you reactivate an OSGi plugin	Resolved
JRA-16379	Weblogic Deployment descriptor (weblogic.xml) has changed for Weblogic 9.x	Resolved
JRA-16407	JiraModuleDescriptorFactory doesn't define some plugins2 descriptors	Resolved
JRA-16424	log4j output should contain more information	Resolved
JRA-16443	Create a jira.field.resolution.include transition attribute	Resolved
JRA-16451	JIRA home directory created in working directory in JIRA standalone	Resolved
JRA-16485	The long component name, on clicking overlaps the UI element	Resolved
JRA-16498	Version/s and Component/s not validated when updating an issue	Resolved
JRA-16502	Local helper has invalid HTML, causing styling issues	Resolved
JRA-16508	no attachments are returned when 'field=attachment' is specified in XML view	Resolved
JRA-16509	Check for javascript enabled in browser	Resolved
JRA-16510	Update to jQuery 1.3.2	Resolved
JRA-16518	Update readme.txt in war	Resolved
JRA-16522	Searching according to multiple assignees should be provided.	Resolved
JRA-16526	Catalan translations needs to be changed	Resolved
JRA-16527	Indexing fails (or atleast error thrown) if index location is pointing to an invalid reference	Resolved
JRA-16529	Project Avatars: User is unable to upload PNG and JPEG file for project avatars on IE 7.0	Resolved
JRA-16530	Project Avatars: User is unable to crop the uploaded image in the project avatars dialog	Resolved
JRA-16531	Project avatar: One image is missing from "Choose an avatar" dialog	Resolved
JRA-16532	User gets a system error if after timeout tries to login from project avatar dialog	Resolved
JRA-16538	User Profile:User Summary area's formatting is not correct when logged in user view profile of other user.	Resolved
JRA-16560	Upgrading bunded plugins fails	Resolved
JRA-16568	Example for xmlrpc client uses a method that has been removed. Need to update	Resolved
JRA-16570	Text after a thumbnail in a comment has anchors	Resolved

^Top

JIRA 4.0 Beta 1 Release Notes

JIRA 4.0 Beta 1 is a public development release leading up to **JIRA 4.0**. For all production use and testing of JIRA, please use the latest official release.

A **Beta release** is a preliminary release leading up to the official release of a JIRA version. Beta releases are a snapshot of our work in progress and provide an advance preview of new features to the general public. JIRA plugin developers can also use Beta releases to test and fix their plugins in advance of an official release.

> **Do not use in production**
> Beta releases should not be used in production environments as they are not officially supported.

> **Please also take note of the following information:**
>
> - **Beta releases are not safe** — Beta releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
>   - Features in development releases may be incomplete, or may change or be removed before the next full release.
> - **No upgrade path** — Because Beta releases represent work in progress, we **cannot** provide a supported upgrade path between Beta releases, or from any Beta to the eventual final release. Thus, any data you store in a JIRA Beta release may not be able to be migrated to a future JIRA release.

> The **only** plugin that is compatible with JIRA 4.0 Beta is the latest JIRA Toolkit. Do not install any other plugins.

The Atlassian JIRA team is delighted to present a brand new version of one of the world's favourite issue-trackers.

Highlights of JIRA 4.0 Beta 1:

- Advanced Searching
- Issue Actions in the Issue Navigator
- Charting Now Comes Standard
- New-look "Browse Project"
- Project Icons
- Dashboard Gadgets
- Activity Stream
- "History" is now permanent
- Plus over 150 other fixes and improvements

Thank you for your interest in JIRA 4.0 Beta 1

Download Beta

Upgrading to JIRA 4.0 Beta
JIRA 4.0 Beta can be downloaded here. Before upgrading, please refer to the JIRA 4.0 Upgrade Guide.

Highlights of JIRA 4.0 Beta 1

Advanced Searching

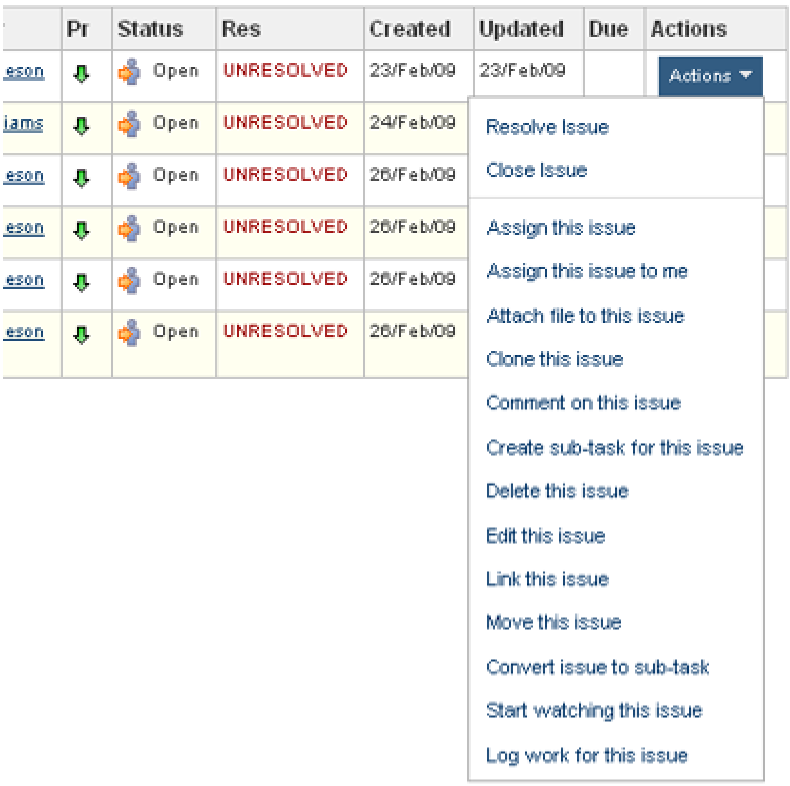
The new advanced search (JQL) provides support for logical operations (including AND/OR/NOT/NULL, even on custom fields) when filtering issues:

For more on the new JQL search syntax, please see the documentation.

^Top

Issue Actions in the Issue Navigator

By popular request, issues can now be actioned directly from the Issue Navigator:



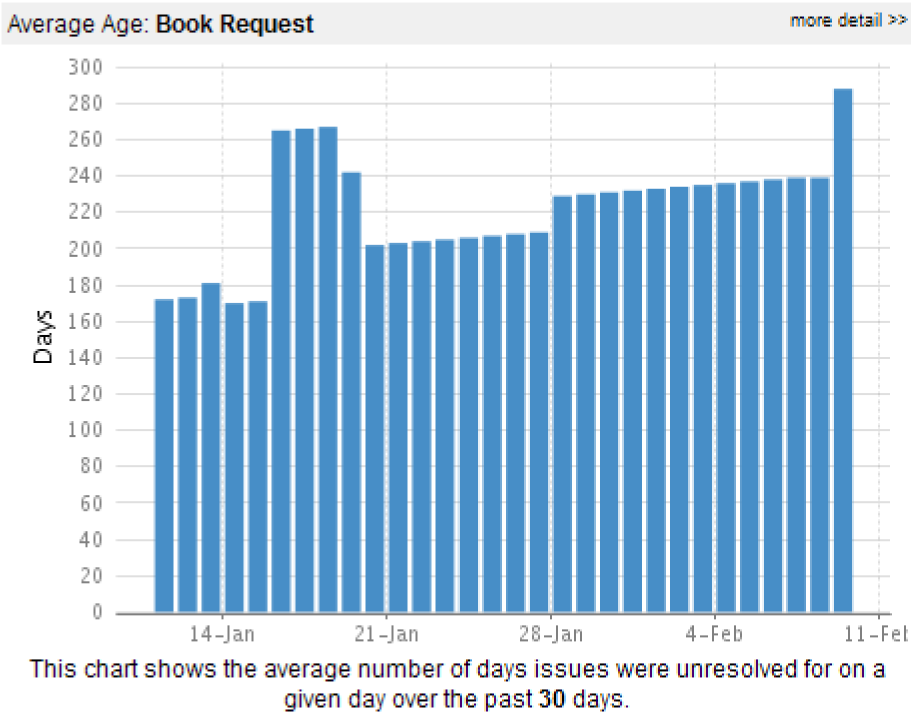
The "Actions" menu is also available for the list of sub-tasks within an issue.

^Top

Charting Now Comes Standard

The following reports and gadgets from the Charting plugin have now been integrated into JIRA:

- "Average Age" report and gadget — Shows the average age (in days) of unresolved issues, e.g.:



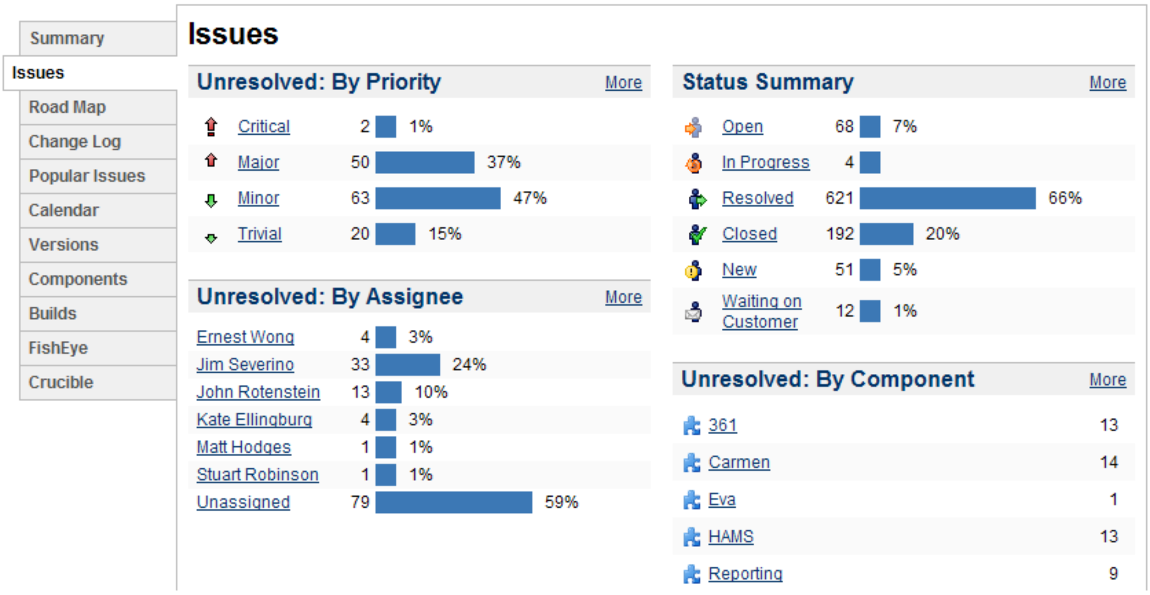
- "Created vs Resolved Issues" report and gadget — Shows the number of issues created vs number of issues resolved over a given period of time.
- "Pie Chart" report and gadget — Shows the search results from a specified issue filter (or project) in a pie-chart, based on a statistic of your choice.
- "Recently Created Issues" report and gadget — Shows the rate at which issues are being created.
- "Resolution Time" report and gadget — Shows the average time taken to resolve issues.
- "Time Since Issues" report and gadget — Shows the number of issues for which your chosen date field (e.g. 'Created') was set on a given date.

Also, the "Resolved" field from the Charting plugin is now part of JIRA, so every issue now automatically has its resolution date recorded.

^Top

New-look "Browse Project"

JIRA 4.0 provides a cleaner, more interactive view in to a project:

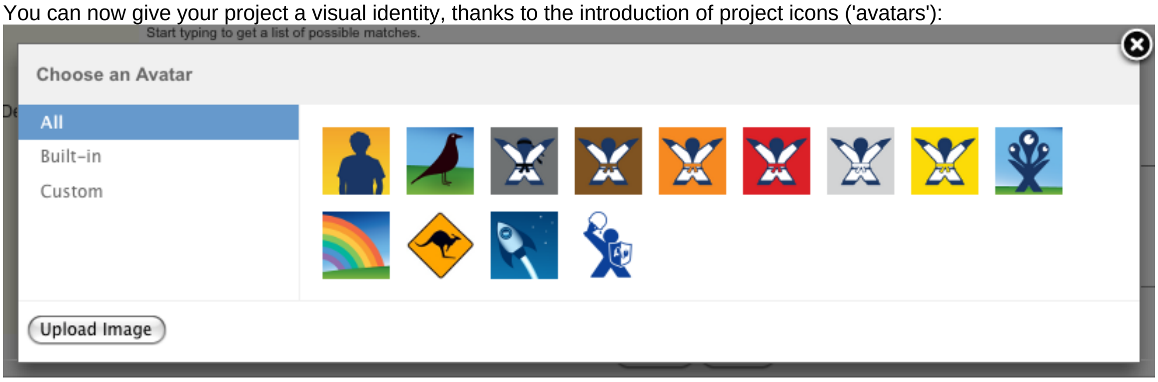


See the documentation for more about browsing projects, versions and components.

^Top

Project Icons

You can now give your project a visual identity, thanks to the introduction of project icons ('avatars'):



^Top

Dashboard Gadgets

The new-look JIRA dashboard now uses industry-standard 'gadgets'. So you can add external gadgets to your JIRA dashboard, as well as displaying JIRA gadgets in other places (such as iGoogle).

What's happened to your favourite JIRA portlets? Don't worry: every portlet that previously shipped with JIRA has been converted to a 'legacy gadget'. And if you are a plugin developer and have created your own portlets, see the instructions for converting your portlets to gadgets.

The following new gadgets are available in Beta 1:

- 'Activity Stream' gadget (see below)
- 'Create Issue' gadget
- 'Filter Results' gadget
- 'Issue Completed This Iteration' gadget

For optimal experience of the new dashboard, please use Firefox 3.x. Support for other browsers will be added prior to the launch of JIRA 4.0.

^Top

7

Activity Stream

The new 'Activity Stream' gadget displays a summary of the latest activity in JIRA projects (and/or by particular people) in which you are interested.

See the documentation for more details.

^Top

8

"History" is now permanent

Your list of recently-viewed issues is now stored in JIRA's database — so it's available after you log out and back in, even if you use a different machine.

^Top

Plus over 150 other fixes and improvements

JIRA Issues (200 issues)

Key	Type	Summary	Priority	Status
JRA-923		Allow filter by "No Fix For" across projects		Resolved
JRA-1538		Filter on Versions and Components across Projects		Resolved
JRA-1560		Better support for logical operation (and/or/not) type of filters.		Resolved
JRA-1579		Create a portlet for the recent history		Resolved
JRA-1635		"not" qualifier on fields for searching		Resolved
JRA-1642		Create home directory instead of index & attachment directory		Resolved
JRA-1800		Improve the UI for browse project		Resolved
JRA-1844		Display attachment comments associated with their attachments		Resolved

JRA-1983		Enable filtering on "older than 1 month"		Resolved
JRA-1994		Ability to filter on time tracking related fields		Resolved
JRA-2033		Add an RSS feed query for comments to individual issues		Resolved
JRA-2469		It would be really nice to specficy several Asignee options in filters		Resolved
JRA-2607		Would like to create a filter also with OR conditions		Resolved
JRA-2681		Extend filter capablities by adding negative clauses		Resolved
JRA-2810		Recently viewed issues		Resolved
JRA-2852		search for issues on version lower or equal to a given version		Resolved
JRA-2916		Allow Previous version searching		Resolved
JRA-2925		Can't filter by Security Level		Resolved
JRA-3000		Add key NUMBER (only number) searching to default search filter.		Resolved
JRA-3101		Jira - query / search / filter by issue links		Resolved
JRA-3114		Request: add optional icon for each project		Resolved
JRA-3206		View issues without an estimate		Resolved
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JRA-12200		Reporter system field throws ClassCastException after populateFromIssue() and validateFromParams()		Resolved
JRA-12525		Emails containing attachments with non-ASCII names lost		Resolved
JRA-12596		Enable cross-project filtering on special versions		Resolved
JRA-12656		Add paging/optimization for Change Log scope		Resolved
JRA-12816		OutOfMemoryError PermGen Space on Windows Func Test (under VMWare)		Resolved
JRA-12921		Ability to export Watched Issues to excel		Resolved

JRA-12976	AbstractMessageHandler might not be removing spaces from email addresses before using them to determine if a user exists when creating an issue from an email		Resolved
JRA-13003	Moving portlet up reults in IndexOutOfBoundsException		Resolved
JRA-13011	Component of a subtask is still component of original project after moving an issue		Resolved
JRA-13035	CSV import can not import resolution date.		Resolved
JRA-13426	Next/previous version links for 'Browse Version' screen		Resolved
JRA-13625	Implicit profiling functionality broken		Resolved
JRA-13689	Saved filters reverted to "All projects" when we deleted a project contained		Resolved
JRA-13711	Printer icon on 'Issue Navigator' does not show the Printable View of the issue navigator as it did in JIRA 3.6		Resolved
JRA-13745	Clean up top toolbar by moving Profile link to username and removing Filters link		Resolved
JRA-13793	Confusing "The 'Project Information' panel is not available" message when fields are disabled		Resolved
JRA-13801	Call method addWorklogAndAutoAdjustRemainingEstimate, the soap server reponse with this type IssueServiceImpl$RemoteWorklogImpl		Resolved
JRA-13850	Servlet Content Listeners should implement the catch / log / rethrow pattern		Resolved
JRA-14031	Form data lost when using back and forward web browser buttons		Resolved
JRA-14220	Ensure the index optimize operation does not cause index lock timeouts		Resolved
JRA-14416	Move Issue with SubTask between differents project, IssueType and SubIssueType		Resolved
JRA-14419	Warning for Websphere installation on validating entity-engine.xml		Resolved
JRA-14490	Deleting project can cause filter to select all projects		Resolved
JRA-14513	JIRA Soap Service log and Access filter log footprint needs improving - Invoked Method would be handy		Resolved
JRA-14516	JIRA upgrade page should warn about possible character encoding issue if JIRA is moved between two servers.		Resolved
JRA-14598	Add access key for administer project from browse project		Resolved
JRA-14613	Each project can have its own logo		Resolved
JRA-14616	Ability to query for issues that you are not watching		Resolved
JRA-14654	ColorPicker for LookAndFeel page does not work on all browsers		Resolved
JRA-14701	OSPropertyText table should have the value column set to extremely-long datatype		Resolved
JRA-14727	Cannot create a literal "backslash underscore" sequence		Resolved
JRA-14811	Deleting Group Does Not Remove Group From a Subscription		Resolved
JRA-14826	Dashboards with a large number of portal pages cause the page to become too wide		Resolved

JRA-14983	Fetch only updated or changed issues		Resolved
JRA-15018	Improved SOAP and HTTP access logging		Resolved
JRA-15112	Adding Update Issue Field workflow postfunction causes OutOfMemoryError		Resolved
JRA-15241	Single user picker field renrered incorrectly		Resolved
JRA-15247	Duplicate explanation of entityengine.xml in the upgrade guide.		Resolved
JRA-15254	Browse Project Panel: Do not show Closed UNRESOLVED issues as Open in the version list		Resolved
JRA-15266	Would prefer if the "Worklog" heading under "Operations" when viewing an issue were a link, like the rest of the operations.		Closed
JRA-15309	Wrong assignee drop-down list sorting with non-ascii characters		Resolved
JRA-15327	On the login page the message at the bottom is off center if an error is displayed		Resolved
JRA-15383	Documentation on Two Dimentional Statistics Filter Portlet needs to specify suported custom fields		Resolved
JRA-15445	RPC plugin needs to be cleaned up		Resolved
JRA-15484	Tokenizing java exceptions fails if the exception is terminated with a full-stop.		Resolved
JRA-15517	Upgrade JIRA to use the latest version of Lucene indexing framework - v2.3.2		Resolved
JRA-15543	Show release date next to version name in the list of versions on Browse Project screen		Resolved
JRA-15545	Export issues to Excel/Word format with non-ASCII filter name does not handle the file name properly		Resolved
JRA-15546	Versions no longer display descriptions when browsing project		Resolved
JRA-15548	If an attempt to get the Index lock times out, the indexing operation is discarded		Resolved
JRA-15564	JIRA displays error after a reindex.		Resolved
JRA-15575	Test and confim JIRA is compatible with Microsoft SQL Server 2008		Resolved
JRA-15625	It is possible to disable plugins that then render jira incapable of restarting		Resolved
JRA-15631	jelly with invalid variables script returns blank page to user		Resolved
JRA-15638	The new dropdown does not appear to render correctly under IE6/7		Resolved
JRA-15646	Convert JIRA to jQuery		Resolved
JRA-15649	Sort list of plugins in Admin section alphabetically		Resolved
JRA-15665	Address issue of plugins pushing filter/report panel off screen		Resolved
JRA-15666	Add project information to the issue XML view		Resolved
JRA-15669	Drag and drop behaviour doesn't work on Modify Issues Type Scheme page		Resolved

JRA-15700	Created VS Resolved cumulative + individual graphs' Y axis should should be independent		Resolved
JRA-15702	Migrate to licensing 2.0		Resolved
JRA-15723	Jelly AddComment tag changes the "updated" issue timestamp to execution script timestamp		Resolved
JRA-15732	Update email documentation to highlight that OutOfMemoryError can stop email processing		Resolved
JRA-15761	If issue key contains unicode characters, redirect on create issue doesn't work		Resolved
JRA-15846	Allow changing license on Data Import in new JIRA instance.		Resolved
JRA-15872	"Browse Project" URL doesn't include current project		Resolved
JRA-15882	Notification Schemes image highlights the wrong function		Resolved
JRA-15886	Add logging notification for index optimization events		Resolved
JRA-15920	Include warning in EAR/WAR documentation not to edit anything directly on the application server		Resolved
JRA-15927	Code samples on Web UI Plugin Module document are incorrect		Resolved
JRA-15962	Upgrade JIRA to Plugins 2.x		Resolved
JRA-15991	Merge translations files into one to make translating JIRA easier!		Resolved
JRA-16058	Aggressive locking in JiraCachingPropertySet causes high contention		Resolved
JRA-16067	Provide field definition in XML issue view URL to customize XML view		Resolved
JRA-16074	Incorrect error warning message on navigator summary		Resolved
JRA-16080	1px offset in Firefox		Resolved
JRA-16088	Created VS Resolved Issues Report contains Old Filtter / Project Picker		Resolved
JRA-16112	Bug in progressWorkflowAction method in SOAP		Resolved
JRA-16113	Do not show negative values on Y axis in Created vs. Resolved chart		Resolved
JRA-16120	Dashboard rewrite		Resolved
JRA-16122	HTTP Basic auth should be enabled by default		Resolved
JRA-16138	Anonymous users should not be considered to "own" all anonymous comments.		Resolved
JRA-16151	Colon : in custom field search causes searching of wrong field		Resolved
JRA-16175	JIRA issues macro does not work with 4.0-m1 on EACJ		Resolved
JRA-16210	Display issue count on JQL execution		Resolved
JRA-16211	Enter / return should execute JQL		Resolved

JRA-16253	Source Build documentation is out of date and incomplete		Resolved
JRA-16276	Adjust colours of Resoltion date chart to be more distinshable for the colour blind		Resolved
JRA-16278	Add ability to search for versions using regex or similar		Resolved
JRA-16316	Assigned To Me Portlet, selecting all columns to display causes error		Resolved
JRA-16339	The "Perm Gen" memory usage shown on the System Info page is incorrect.		Resolved
JRA-16351	Component plugin modules don't show up in plugins admin section in JIRA 4.0		Resolved
JRA-16363	ServiceProxyDestroyedException when you reactivate an OSGi plugin		Resolved
JRA-16379	Weblogic Deployment descriptor (weblogic.xml) has changed for Weblogic 9.x		Resolved
JRA-16407	JiraModuleDescriptorFactory doesn't define some plugins2 descriptors		Resolved
JRA-16424	log4j output should contain more information		Resolved
JRA-16443	Create a jira.field.resolution.include transition attribute		Resolved
JRA-16451	JIRA home directory created in working directory in JIRA standalone		Resolved
JRA-16485	The long component name, on clicking overlaps the UI element		Resolved
JRA-16498	Version/s and Component/s not validated when updating an issue		Resolved
JRA-16502	Local helper has invalid HTML, causing styling issues		Resolved
JRA-16508	no attachments are returned when 'field=attachment' is specified in XML view		Resolved
JRA-16509	Check for javascript enabled in browser		Resolved
JRA-16510	Update to jQuery 1.3.2		Resolved
JRA-16518	Update readme.txt in war		Resolved
JRA-16522	Searching according to multiple assignees should be provided.		Resolved
JRA-16526	Catalan translations needs to be changed		Resolved
JRA-16527	Indexing fails (or atleast error thrown) if index location is pointing to an invalid reference		Resolved
JRA-16529	Project Avatars: User is unable to upload PNG and JPEG file for project avatars on IE 7.0		Resolved
JRA-16530	Project Avatars: User is unable to crop the uploaded image in the project avatars dialog		Resolved
JRA-16531	Project avatar: One image is missing from "Choose an avatar" dialog		Resolved
JRA-16532	User gets a system error if after timeout tries to login from project avatar dialog		Resolved
JRA-16538	User Profile:User Summary area's formatting is not correct when logged in user view profile of other user.		Resolved

JRA-16560		Upgrading bunded plugins fails		Resolved
JRA-16568		Example for xmlrpc client uses a method that has been removed. Need to update		Resolved
JRA-16570		Text after a thumbnail in a comment has anchors		Resolved

^Top

EAP Releases

The following EAP releases are currently available for download. Your help with testing them is very appreciated! Please log the bugs you find on http://jira.atlassian.com in the "JIRA" project.

EAP Releases

- JIRA 4.3 EAP 5 Release Notes
- JIRA 4.3 EAP 3 Release Notes
- JIRA 4.3 EAP 2 Release Notes
- JIRA 4.3 EAP 1 Release Notes
- JIRA 4.2 EAP 4 Release Notes
- JIRA 4.2 EAP 3 Release Notes
- JIRA 4.2 EAP 2 Release Notes
- JIRA 4.2 EAP 1 Release Notes
- JIRA 3.11 EAP Release Notes

An **Early Access Preview (EAP) release** is a public development release leading up to the official release of a JIRA version. Development releases are a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release.

Do not use in production
EAP releases should not be used in production environments as they are not officially supported.

Please also take note of the following information:

- **EAP Releases are Not Safe** — EAP releases are snapshots of the ongoing JIRA development process. As such:
  - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
  - Features in development releases may be incomplete, or may change or be removed before the next full release.
- **No Upgrade Path** — Because EAP releases represent work in progress, we **can not** provide a supported upgrade path between EAP releases, or from any EAP to the eventual final release. Thus, any data you store in a JIRA EAP release may not be able to be migrated to a future JIRA release.

Related Information

Beta Releases
You may also be interested in the JIRA Beta Releases, which are early releases intended for the general public as well as developers.

Latest Beta Release:

- JIRA 4.3 RC1 Release Notes

JIRA 4.3 EAP 5 Release Notes

14 January 2011

JIRA 4.3 EAP 5 (a.k.a 4.3 milestone 5 or 'm5') is a public development release leading up to **JIRA 4.3**. An **Early Access Preview (EAP) release** is a a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release. For all production use and testing of JIRA, please use the latest official release.

- A note for the curious: we skipped the EAP 4 release due to the holiday season.

The Atlassian team is proud to bring you the JIRA 4.3 EAP 5 release. Thank you for your feedback so far, and please keep providing it here.

Identity management comes of age in JIRA 4.3, with complete LDAP integration. Additionally, you now have the ability to search an issue's change history. JIRA 4.3 also includes the Universal Plugin Manager for easier management of plugins.

Dashboard Publish/Subscribe with Confluence (i.e. Gadgets 2.0) is also included, so if you are using Confluence as well as JIRA, your Confluence gadgets will now appear in the JIRA Gadget Directory (and vice versa).

Note to developers: JIRA 4.3 EAP 5 includes Unified Application Links (UAL), Gadgets 2.0, and the Atlassian Plugin Framework version 2.6. Also please see the Plugin Developer Notes for JIRA 4.3, plus note that the REST API will continue to evolve through the 4.3 EAP releases — please watch the Developer blog for the latest news on the REST API.

Highlights of JIRA 4.3 EAP 5:

- Add another application's Gadgets to your JIRA Gadget Directory
- Search the Change History with JQL 'WAS' Function ***(improved since EAP 3)***
- Full LDAP integration ***(upgrade note added since EAP 3)***
- User Directory management via JIRA Admin UI
- Revamped User Avatars ***(new since EAP 3)***
- Mail Server Configuration Improvements ***(improved since EAP 3)***
- User Email Change is now Password Protected ***(new since EAP 3)***
- New Plugin Management System
- AppLinks pre-installed and configurable from the JIRA Admin UI
- Enhancements to Quick Search ***(improved since EAP 3)***
- Faster Dashboards
- REST API improvements
- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.3 EAP 5
Download EAP

> **Upgrading to JIRA 4.3 EAP 5**
> JIRA EAP releases are available here. When upgrading, please follow the JIRA 4.3 Upgrade Guide.

> **Do not use in production**
>
> - **EAP releases are not safe** — EAP releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
>   - Features in development releases may be incomplete, or may change or be removed before the next full release.
> - **No upgrade path** — Because EAP releases represent work in progress, we **can not** provide a supported upgrade path between EAP releases, or from any EAP to the eventual final release. Thus, any data you store in a JIRA EAP release may not be able to be migrated to a future JIRA release.

Highlights of JIRA 4.3 EAP 5

Add another application's Gadgets to your JIRA Gadget Directory

JIRA 4.3 EAP 2 includes Atlassian Gadgets 2.0, allowing you to quickly add all gadgets from your Confluence, Bamboo, FishEye or Crucible instance — or from another JIRA instance — to your JIRA Gadget Directory, for easy addition to your JIRA dashboard:

In the JIRA Gadget Directory , you can now click 'Gadget Subscriptions'. There you can provide the URL for the other application (or other JIRA instance), and all the gadgets from that instance will be added to your JIRA Gadget Directory.

^Top

Search the Change History with JQL 'WAS' Function (improved since EAP 3)

In EAP 2 we released the first cut of Change History searching. There is much more functionality to follow, but for now you can search for changes to the Status field.

For example, the following will return all issues that currently have, or previously had, a status of 'In Progress':

```
status WAS "In Progress"
```

Autocomplete has been implemented in EAP 5.

^Top

Full LDAP integration (upgrade note added since EAP 3)

The way users and groups are stored and accessed in JIRA has been totally rewritten in Release 4.3. This provides a number of additional capabilities, mainly the ability to use an LDAP server for all user information. Key features are:

- Ability to connect to an LDAP server, including to Microsoft Active Directory, for user management. This includes:
  - Read-write access
  - Read-only access
  - Read-only access with local groups
  - Use LDAP for authentication only — *Previous functionality*
- Ability to connect to a Crowd server for user management — *Previous functionality*
- Ability to manage users fully within JIRA — *Previous functionality*
- Ability to use 2 or more LDAP and/ or Crowd servers simultaneously for user management.

Note when upgrading from EAP 3

If you are upgrading to EAP 5 from EAP 3, please note that there have been changes to Crowd that require extra data in the cwd_application table.

You will need to update the table and add 'CROWD' into the application_type column:

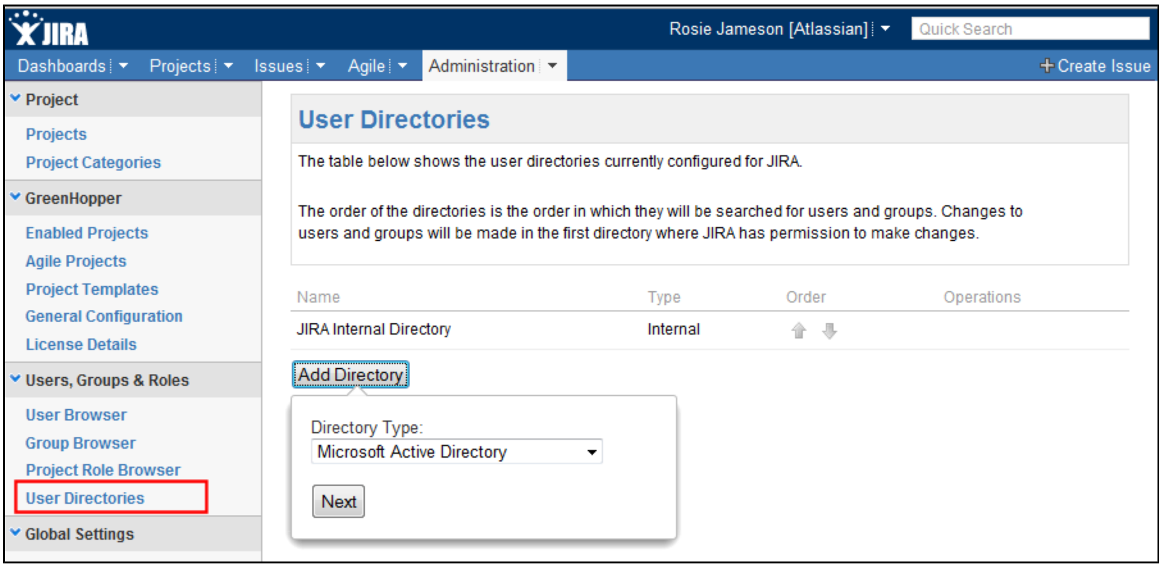
```
UPDATE cwd_application SET application_type = 'CROWD';
```

(This will not be necessary when upgrading to the final release of JIRA 4.3.)

^Top

User Directory management via JIRA Admin UI

In JIRA 4.3, administrators can now manage external User Directories directly from the JIRA Administration screens. Gone are the days of manually editing XML files.



^Top

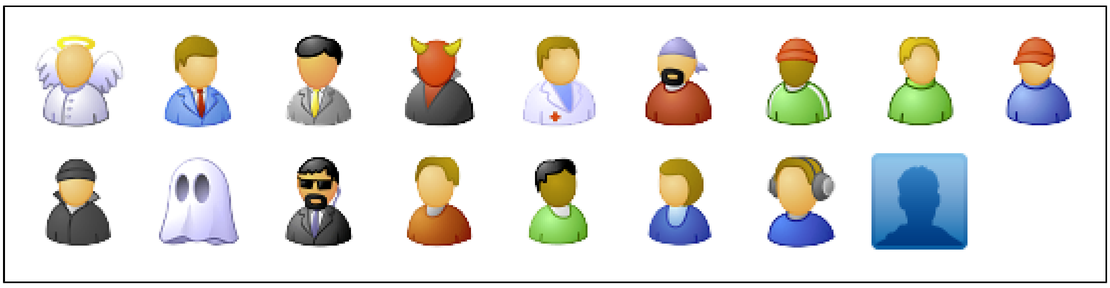
5

Revamped User Avatars (new since EAP 3)

JIRA 4.3 introduces the new-look Atlassian avatars:

- User avatars are displayed as the icon for your profile, and to illustrate your comments on an issue. See the documentation on Adding a User Avatar.

We were fond of the old avatars, but think you'll agree they were looking a little dated by comparison:

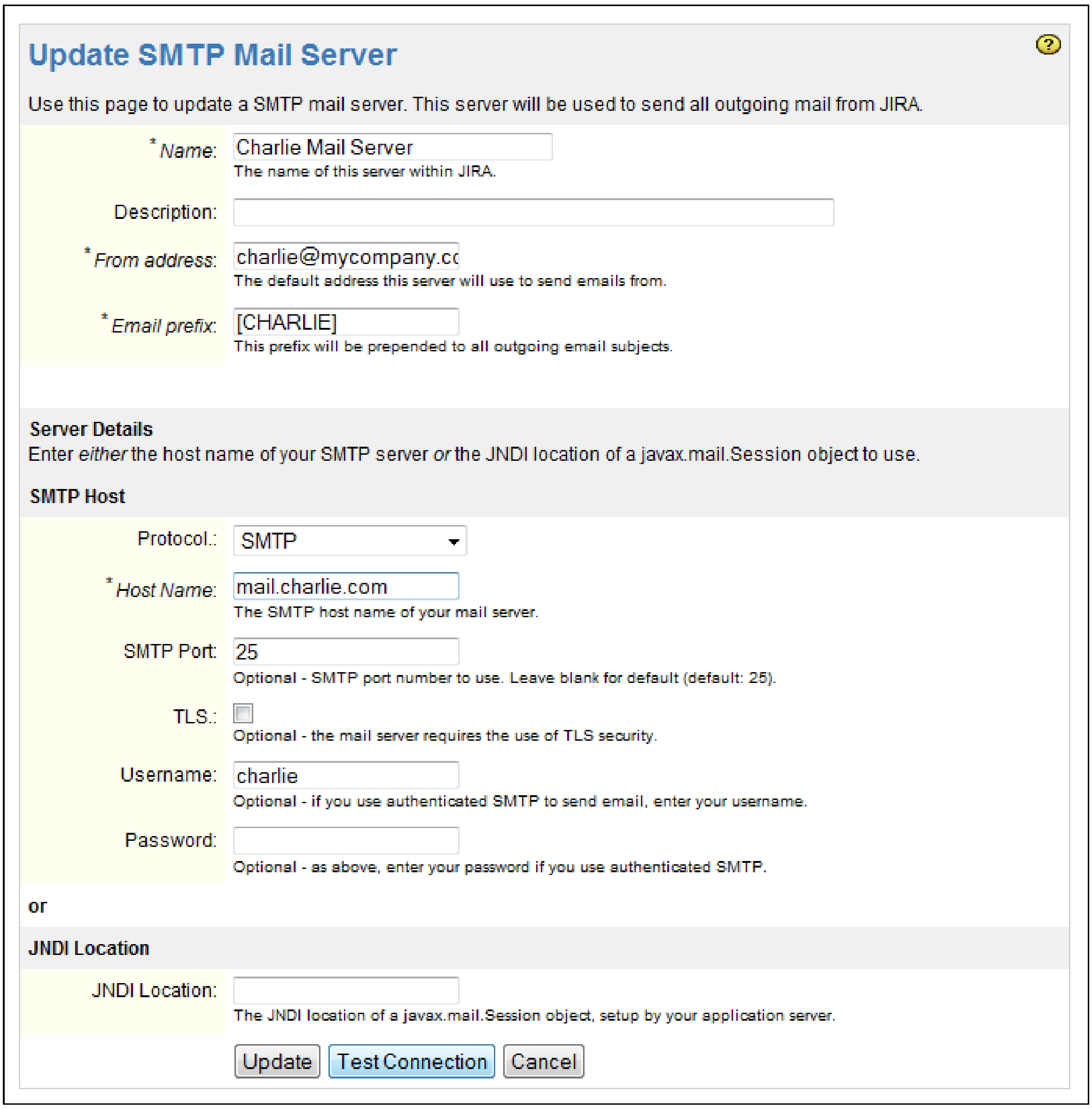


^Top

6

Mail Server Configuration Improvements (improved since EAP 3)

In JIRA 4.3, administrators can now test their mail server configuration with the "Test Connection" button.



A '**Timeout**' field has also been added in EAP 5.

^Top

7

User Email Change is now Password Protected (new since EAP 3)

For enhanced security, users will now be prompted to enter their password when changing their email address.

^Top

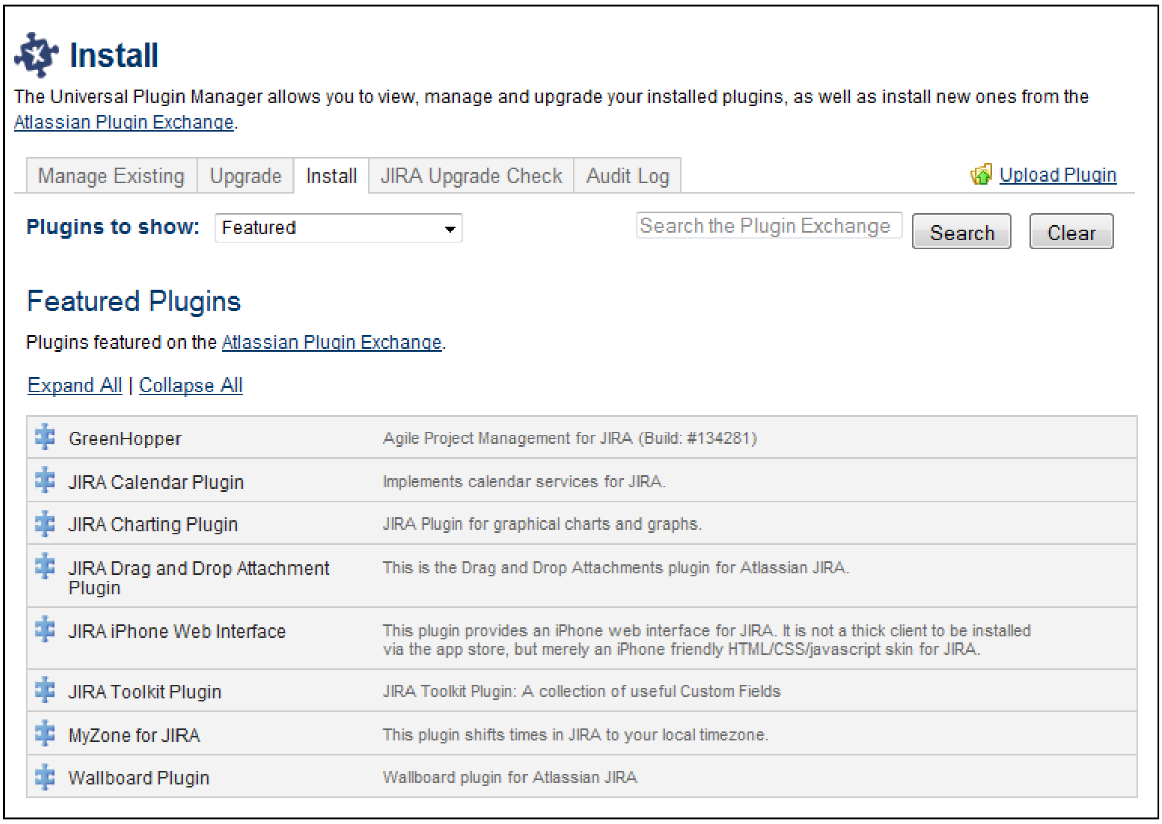
8

New Plugin Management System

JIRA 4.3 includes the Universal Plugin Manager (UPM), which provides you with a simple way of adding and managing plugins:

- Auto-discovery of available plugins (see **Featured Plugins** in the screenshot below)

- Point-and-click installation — no more downloading JAR files



^Top

AppLinks pre-installed and configurable from the JIRA Admin UI

JIRA 4.3 EAP 5 includes Unified Application Links (UAL), so you no longer need to install it separately.

Application Links (AppLinks) is a plugin that allows you to link your JIRA, Confluence, FishEye, Crucible, Bamboo and Subversion applications. You can even choose to associate individual entities (i.e. JIRA projects, Confluence spaces, FishEye repositories, FishEye projects, Crucible projects, Bamboo projects) with each other.

Applications Links is bundled with FishEye 2.4 and will be bundled with Confluence 3.5 and JIRA 4.3.

Linking two applications allows you to share information and access one application's functions from within the other. For example, if you linked a JIRA server and a Confluence server, you could view JIRA issues in a Confluence page via the JIRA Issues Macro.

You also can associate entities of two linked applications. For example, you could associate a JIRA project with a Confluence space. This allows you to take advantage of additional integration features like link rendering, which lets you create links to issues or pages in the project or space using a simple textual reference, e.g. `[JRA-1234], [myConfluenceSpace:Test Page]`.

- In JIRA 4.3 EAP 5 there is now a '**Managed Unified Application Links**' option on the '**Manage Project**' screen, enabling you to easily configure application links for a given project.

For more about configuring Application Links, please see the Application Links Administrator's Guide.

^Top

Enhancements to Quick Search (improved since EAP 3)

When using Quick Search to find issues with a particular version, you can now use the wildcard symbol: "`*`". For example, "`ff:3.2*`" will match any issue whose Fix For Version is:

- 3.2
- 3.2-beta
- 3.2.1
- 3.2.x

You can also find issues reported by you, another user or with no reporter, using the prefix "`r:`" followed by a specific reporter term such as "`me`", a username or "`none`", such that:

- "`r:me`" — finds issues reported by you.
- "`r:samuel`" — finds issues reported by the user whose username is "samuel".
- "`r:none`" — finds issues with no reporter.

^Top

Faster Dashboards

We are extremely pleased to announce that you should see a noticeable reduction in the time it takes to load a Dashboard.

- On average, dashboard performance has improved by 29%
- For large dashboards, the performance improvement is 35%

^Top

REST API improvements

We have improved discoverability of issues and projects through the REST API: there is now a `search` resource, which can be used to search for issues using JIRA Query Language (JQL). It is also possible to obtain a list of projects in a JIRA instance. Have a look at the reference documentation to see if the REST API offers the features that you want (let us know if not).

Clients that log in through the REST API can now determine when the login has been denied due to a CAPTCHA requirement: the HTTP header `X-Authentication-Denied-Reason` has all the necessary information.

^Top

Other Enhancements and Fixes

For the list of issues resolved in JIRA 4.3 so far, click here.

^Top

JIRA 4.3 EAP 3 Release Notes

20 December 2010

JIRA 4.3 EAP 3 (a.k.a 4.3 milestone 3 or 'm3') is a public development release leading up to **JIRA 4.3**. An **Early Access Preview (EAP) release** is a a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release. For all production use and testing of JIRA, please use the latest official release.

The Atlassian team is proud to bring you the JIRA 4.3 EAP 3 release. Development work on JIRA 4.3 has only commenced very recently, but we want your involvement from the earliest days. Please provide feedback here.

Identity management comes of age in JIRA 4.3, with complete LDAP integration. Additionally, you now have the ability to search an issue's change history. JIRA 4.3 also includes the Universal Plugin Manager for easier management of plugins.

Dashboard Publish/Subscribe (i.e. Gadgets 2.0) is also included, so you can now add gadgets from another Atlassian application (Confluence, FishEye, Crucible, Bamboo) — or from another JIRA instance — to your JIRA Gadget Directory.

Note to developers: JIRA 4.3 EAP 3 includes Unified Application Links (UAL) *(new since EAP 2)*, Gadgets 2.0 *(new since EAP 2)*, and the Atlassian Plugin Framework version 2.6. Also please see the Plugin Developer Notes for JIRA 4.3, plus note that the REST API will continue to evolve through the 4.3 EAP releases — please watch the Developer blog for the latest news on the REST API.

Highlights of JIRA 4.3 EAP 3:

- Add another application's Gadgets to your JIRA Gadget Directory ***(new since EAP 2)***
- Search the Change History with JQL 'WAS' Function
- Full LDAP integration
- User Directory management via JIRA Admin UI
- Mail Server Configuration Improvements
- New Plugin Management System
- AppLinks pre-installed and configurable from the JIRA Admin UI ***(new since EAP 2)***
- Quick Search now has a Wild Card
- Faster Dashboards ***(new since EAP 2)***
- REST API improvements
- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.3 EAP 3
Download EAP

Interested in a prototype plugin that simplifies JIRA project administration? http://atlss.in/ik76wl

Upgrading to JIRA 4.3 EAP 3
JIRA EAP releases are available here. When upgrading, please follow the JIRA 4.3 Upgrade Guide.

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Highlights of JIRA 4.3 EAP 3

1

Add another application's Gadgets to your JIRA Gadget Directory (new since EAP 2)

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^Top

2

Search the Change History with JQL 'WAS' Function

We have released the first cut of Change History searching. There is much more functionality to follow, but for now you can search for changes to the Status field.

For example, the following will return all issues that currently have, or previously had, a status of 'In Progress':

```
status WAS "In Progress"
```

Note that autocomplete has not yet been implemented, but full error reporting is supported.

^Top

3

Full LDAP integration

The way users and groups are stored and accessed in JIRA has been totally rewritten in Release 4.3. This provides a number of additional capabilities, mainly the ability to use an LDAP server for all user information. Key features are:

- Ability to connect to an LDAP server, including to Microsoft Active Directory, for user management. This includes:
  - Read-write access
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^Top

4

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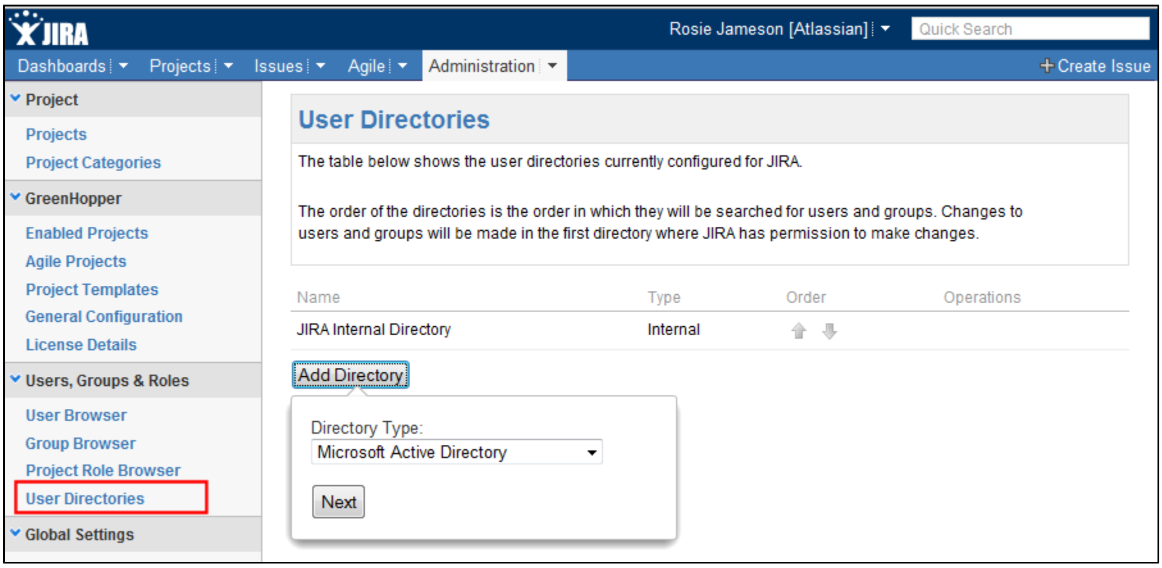

^Top

5

Mail Server Configuration Improvements

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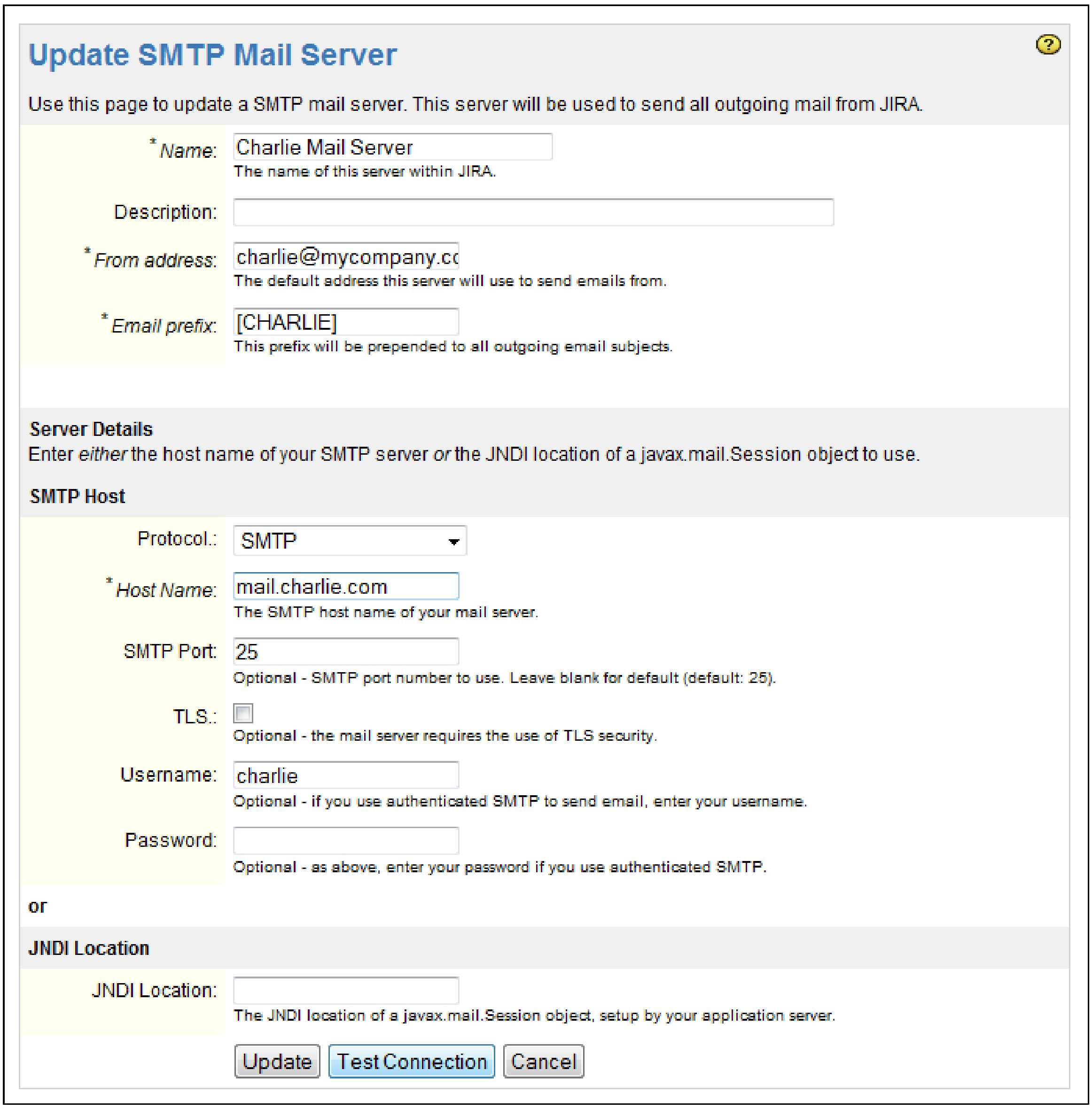


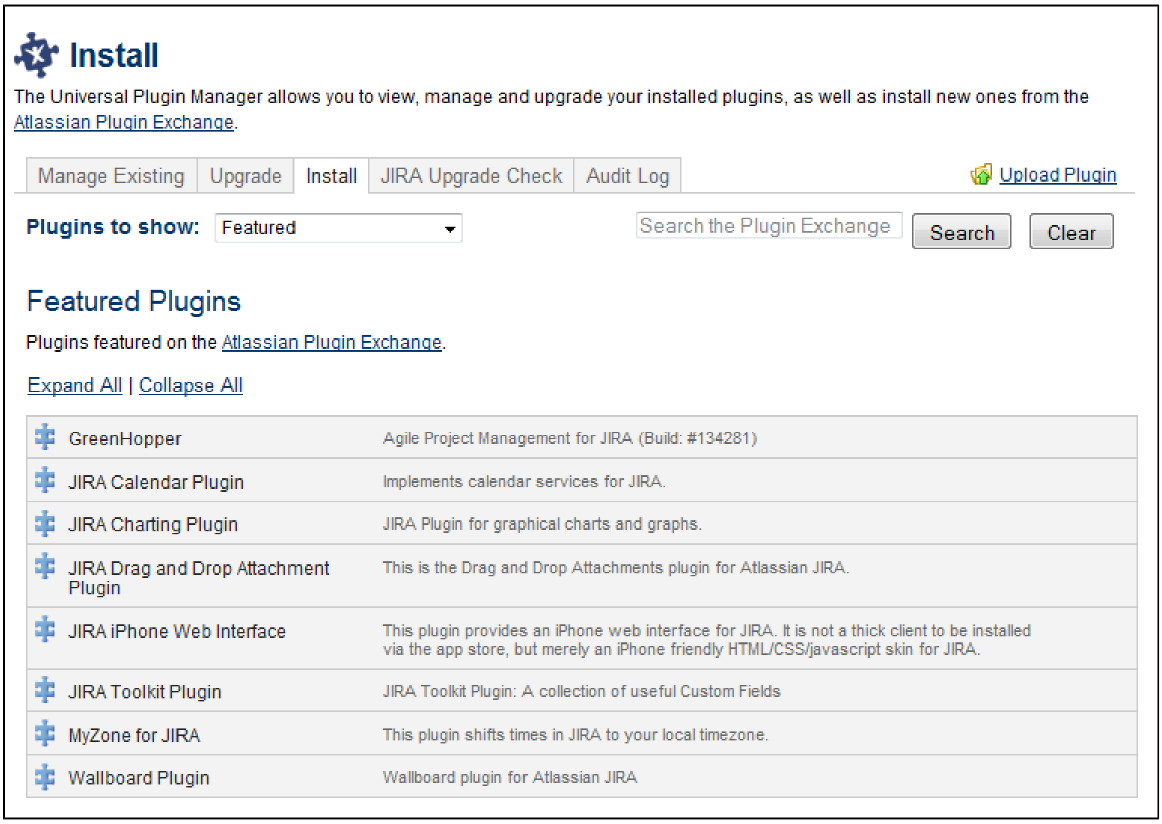
^Top

6

New Plugin Management System

JIRA 4.3 includes the Universal Plugin Manager (UPM), which provides you with a simple way of adding and managing plugins:

- Auto-discovery of available plugins (see **Featured Plugins** in the screenshot below)
- Point-and-click installation — no more downloading JAR files



^Top

7

AppLinks pre-installed and configurable from the JIRA Admin UI (new since EAP 2)

JIRA 4.3 EAP 3 includes Unified Application Links (UAL), so you no longer need to install it separately.

Application Links (AppLinks) is a plugin that allows you to link your JIRA, Confluence, FishEye, Crucible, Bamboo and Subversion applications. You can even choose to associate individual entities (i.e. JIRA projects, Confluence spaces, FishEye repositories, FishEye projects, Crucible projects, Bamboo projects) with each other.

Linking two applications allows you to share information and access one application's functions from within the other. For example, if you linked a JIRA server and a Confluence server, you could view JIRA issues in a Confluence page via the JIRA Issues Macro.

You also can associate entities of two linked applications. For example, you could associate a JIRA project with a Confluence space. This allows you to take advantage of additional integration features like link rendering, which lets you create links to issues or pages in the project or space using a simple textual reference, e.g. `[JRA-1234], [myConfluenceSpace:Test Page]`.

- In JIRA 4.3 EAP 3 there is now a '**Managed Unified Application Links**' option on the '**Manage Project**' screen, enabling you to easily configure application links for a given project.

For more about configuring Application Links, please see the Application Links Administrator's Guide.

^Top

8

Quick Search now has a Wild Card

When using Quick Search to find issues with a particular version, you can now use the wildcard symbol: `"*"`. For example, `"ff:3.2*"` will match any issue whose Fix For Version is:

- 3.2
- 3.2-beta
- 3.2.1

- 3.2.x

^Top

9

Faster Dashboards (new since EAP 2)

We are extremely pleased to announce that you should see a noticeable reduction in the time it takes to load a Dashboard.

- On average, dashboard performance has improved by 29%
- For large dashboards, the performance improvement is 35%

^Top

10

REST API improvements

We have improved discoverability of issues and projects through the REST API: there is now a `search` resource, which can be used to search for issues using JIRA Query Language (JQL). It is also possible to obtain a list of projects in a JIRA instance. Have a look at the reference documentation to see if the REST API offers the features that you want (let us know if not).

Clients that log in through the REST API can now determine when the login has been denied due to a CAPTCHA requirement: the HTTP header `X-Authentication-Denied-Reason` has all the necessary information.

^Top

Other Enhancements and Fixes

For the list of issues resolved in JIRA 4.3 so far, click here.

^Top

JIRA 4.3 EAP 2 Release Notes

7 December 2010

JIRA 4.3 EAP 2 (a.k.a 4.3 milestone 2 or 'm2') is a public development release leading up to **JIRA 4.3**. An **Early Access Preview (EAP) release** is a a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release. For all production use and testing of JIRA, please use the latest official release.

The Atlassian team is proud to bring you the JIRA 4.3 EAP 2 release. Development work on JIRA 4.3 has only commenced very recently, but we want your involvement from the earliest days. Please provide feedback here.

Identity management comes of age in JIRA 4.3, with complete LDAP integration. Additionally, you now have the ability to search an issue's change history. JIRA 4.3 also includes the Universal Plugin Manager for easier management of plugins.

Note to developers: JIRA 4.3 EAP 2 includes the Atlassian Plugin Framework version 2.6. Also please see the Plugin Developer Notes for JIRA 4.3, plus note that the REST API will continue to evolve through the 4.3 EAP releases — please watch the Developer blog for the latest news on the REST API.

Highlights of JIRA 4.3 EAP 2:

- Search the Change History with JQL 'WAS' Function ***(new since EAP 1)***
- Full LDAP integration ***(Crowd 2.1 connectivity is new since EAP 1)***
- User Directory management via JIRA Admin UI
- Mail Server Configuration Improvements
- New Plugin Management System ***(new since EAP 1)***
- Quick Search now has a Wild Card ***(new since EAP 1)***
- REST API improvements
- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.3 EAP 2
Download EAP

Upgrading to JIRA 4.3 EAP 2
JIRA EAP releases are available here. When upgrading, please follow the JIRA 4.3 Upgrade Guide.

Do not use in production

- **EAP releases are not safe** — EAP releases are snapshots of the ongoing JIRA development process. As such:
  - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
  - Features in development releases may be incomplete, or may change or be removed before the next full release.
- **No upgrade path** — Because EAP releases represent work in progress, we **can not** provide a supported upgrade path between EAP releases, or from any EAP to the eventual final release. Thus, any data you store in a JIRA EAP release may not be able to be migrated to a future JIRA release.

Highlights of JIRA 4.3 EAP 2

1

Search the Change History with JQL 'WAS' Function (new since EAP 1)

In EAP 2 we are releasing the first cut of Change History searching. There is much more functionality to follow, but for now you can search for changes to the Status field.

For example, the following will return all issues that currently have, or previously had, a status of 'In Progress':

```
status WAS "In Progress"
```

Note that autocomplete has not yet been implemented, but full error reporting is supported.

^Top

2

Full LDAP integration (Crowd 2.1 connectivity is new since EAP 1)

The way users and groups are stored and accessed in JIRA has been totally rewritten in Release 4.3. This provides a number of additional capabilities, mainly the ability to use an LDAP server for all user information. Key features are:

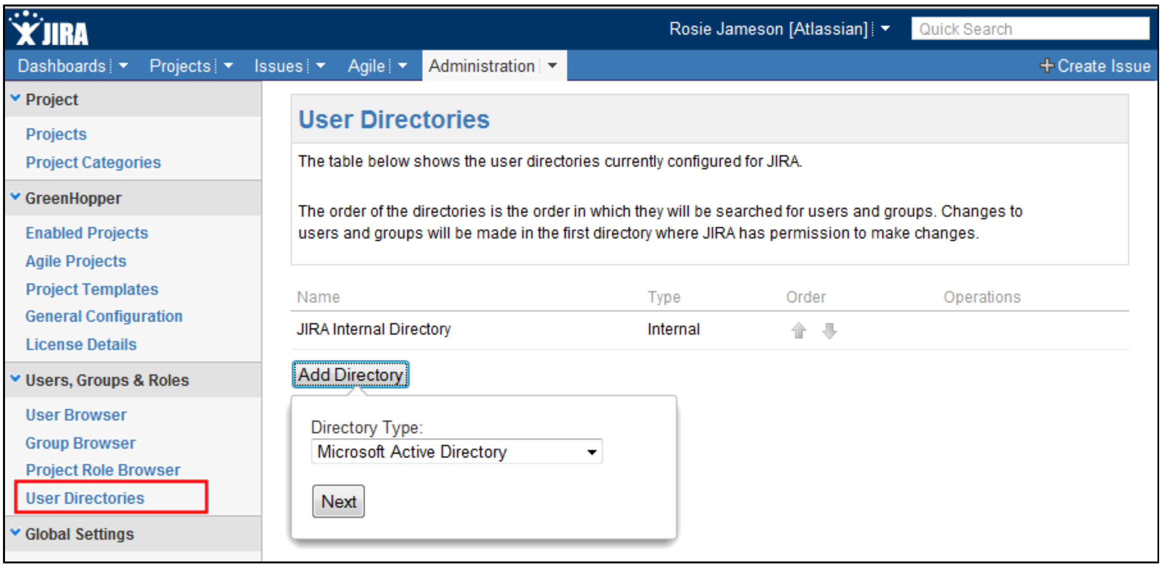
- Ability to connect to an LDAP server, including to Microsoft Active Directory, for user management. This includes:
  - Read-write access
  - Read-only access
  - Read-only access with local groups
  - Use LDAP for authentication only — *Previous functionality*
- Ability to connect to a Crowd server for user management — *Previous functionality*
- Ability to manage users fully within JIRA — *Previous functionality*
- Ability to use 2 or more LDAP and/ or Crowd servers simultaneously for user management.

^Top

3

User Directory management via JIRA Admin UI

In JIRA 4.3, administrators can now manage external User Directories directly from the JIRA Administration screens. Gone are the days of manually editing XML files.



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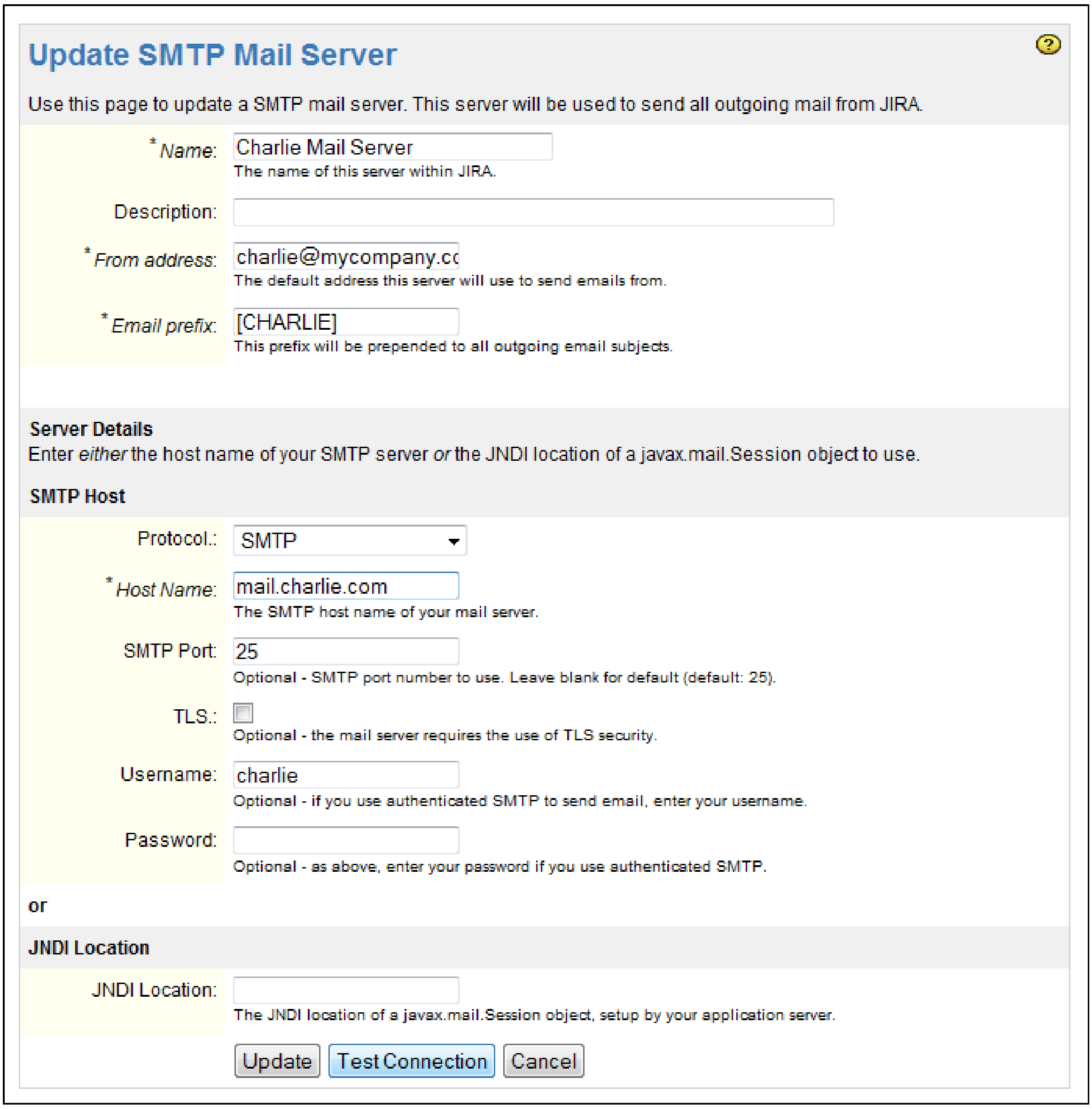
4

Mail Server Configuration Improvements

In JIRA 4.3, administrators can now test their mail server configuration with the "Test Connection" button.

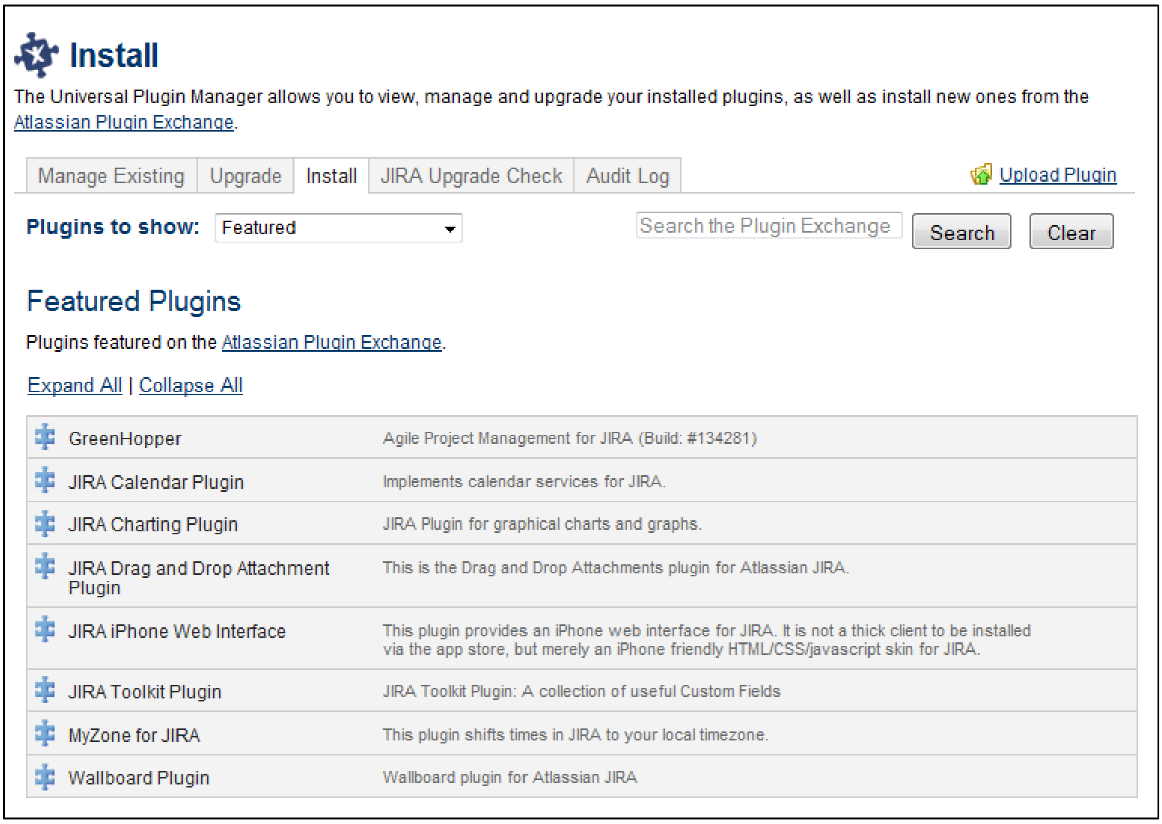


^Top

New Plugin Management System (new since EAP 1)

JIRA 4.3 includes the Universal Plugin Manager (UPM), which provides you with a simple way of adding and managing plugins:

- Auto-discovery of available plugins (see **Featured Plugins** in the screenshot below)
- Point-and-click installation — no more downloading JAR files and restarting JIRA



^Top

Quick Search now has a Wild Card (new since EAP 1)

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- 3.2
- 3.2-beta
- 3.2.1
- 3.2.x

^Top

REST API improvements

We have improved discoverability of issues and projects through the REST API: there is now a `search` resource, which can be used to search for issues using JIRA Query Language (JQL). It is also possible to obtain a list of projects in a JIRA instance, and to create links between issues.

Clients that log in through the REST API can now determine when the login has been denied due to a CAPTCHA requirement: the HTTP header `X-Authentication-Denied-Reason` has all the necessary information.

Have a look at the reference documentation to see if the REST API offers the features that you want (let us know if not).

^Top

Other Enhancements and Fixes

For the list of issues resolved in JIRA 4.3 so far, click here.

^Top

JIRA 4.3 EAP 1 Release Notes

18 November 2010

JIRA 4.3 EAP 1 (a.k.a 4.3 milestone 1 or 'm1') is a public development release leading up to **JIRA 4.3**. For all production use and testing of JIRA, please use the latest official release.

An **Early Access Preview (EAP) release** is a public development release leading up to the official release of a JIRA version. Development releases are a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release.

> **Do not use in production**
> EAP releases should not be used in production environments as they are not officially supported.

> **Please also take note of the following information:**
>
> - **EAP Releases are Not Safe** — EAP releases are snapshots of the ongoing JIRA development process. As such:
>   - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
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> - **No Upgrade Path** — Because EAP releases represent work in progress, we **can not** provide a supported upgrade path between EAP releases, or from any EAP to the eventual final release. Thus, any data you store in a JIRA EAP release may not be able to be migrated to a future JIRA release.

The Atlassian team is proud to bring you the JIRA 4.3 EAP 1 release. Development work on JIRA 4.3 has only commenced very recently, but we want your involvement from the earliest days. Please provide feedback here.

Note to developers: JIRA 4.3 EAP 1 includes Atlassian Plugin Framework version 2.6. Also please see the Plugin Developer Notes for JIRA 4.3, plus note that the REST API will continue to evolve through the 4.3 EAP releases — please watch the JIRA blog for the latest news on the REST API.

Highlights of JIRA 4.3 EAP 1:

- Full LDAP integration
- User Directory management via JIRA Admin UI
- Mail Server Configuration Improvements
- REST API improvements
- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.3 EAP 1
Download EAP

> **Upgrading to JIRA 4.3 EAP 1**
> JIRA EAP releases are available here. Please follow the JIRA 4.3 Upgrade Guide.

Highlights of JIRA 4.3 EAP 1

1

Full LDAP integration

The way users and groups are stored and accessed in JIRA has been totally rewritten in Release 4.3. This provides a number of additional capabilities, mainly the ability to use an LDAP server for all user information. Key features are:

- Ability to connect to an LDAP server, including to Microsoft Active Directory, for user management. This includes:
  - Read-write access
  - Read-only access
  - Read-only access with local groups
  - Use LDAP for authentication only — *Previous functionality*

^Top

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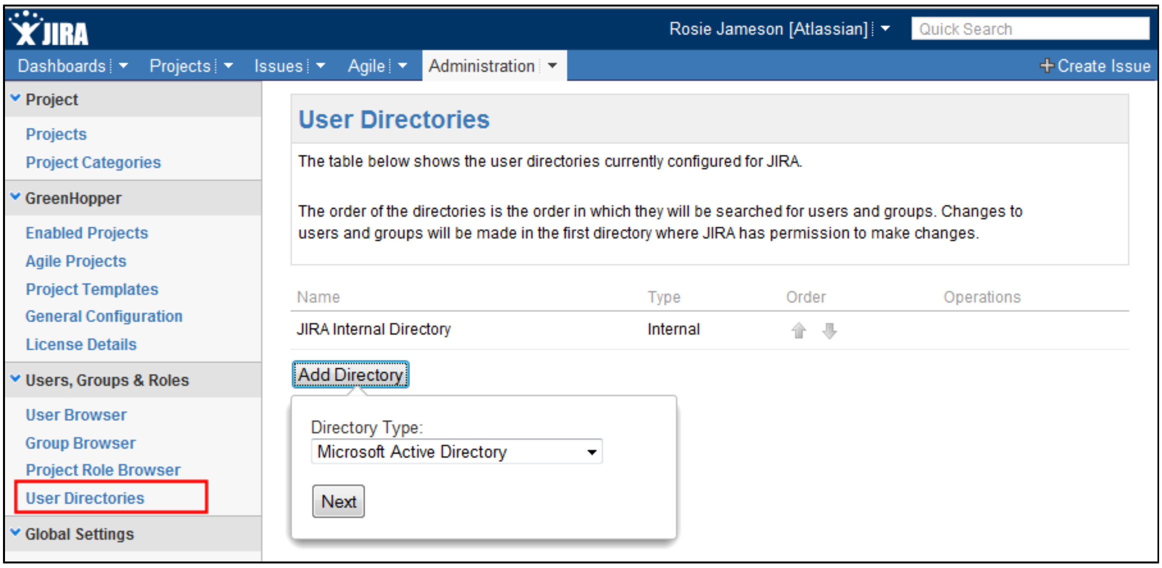

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Mail Server Configuration Improvements

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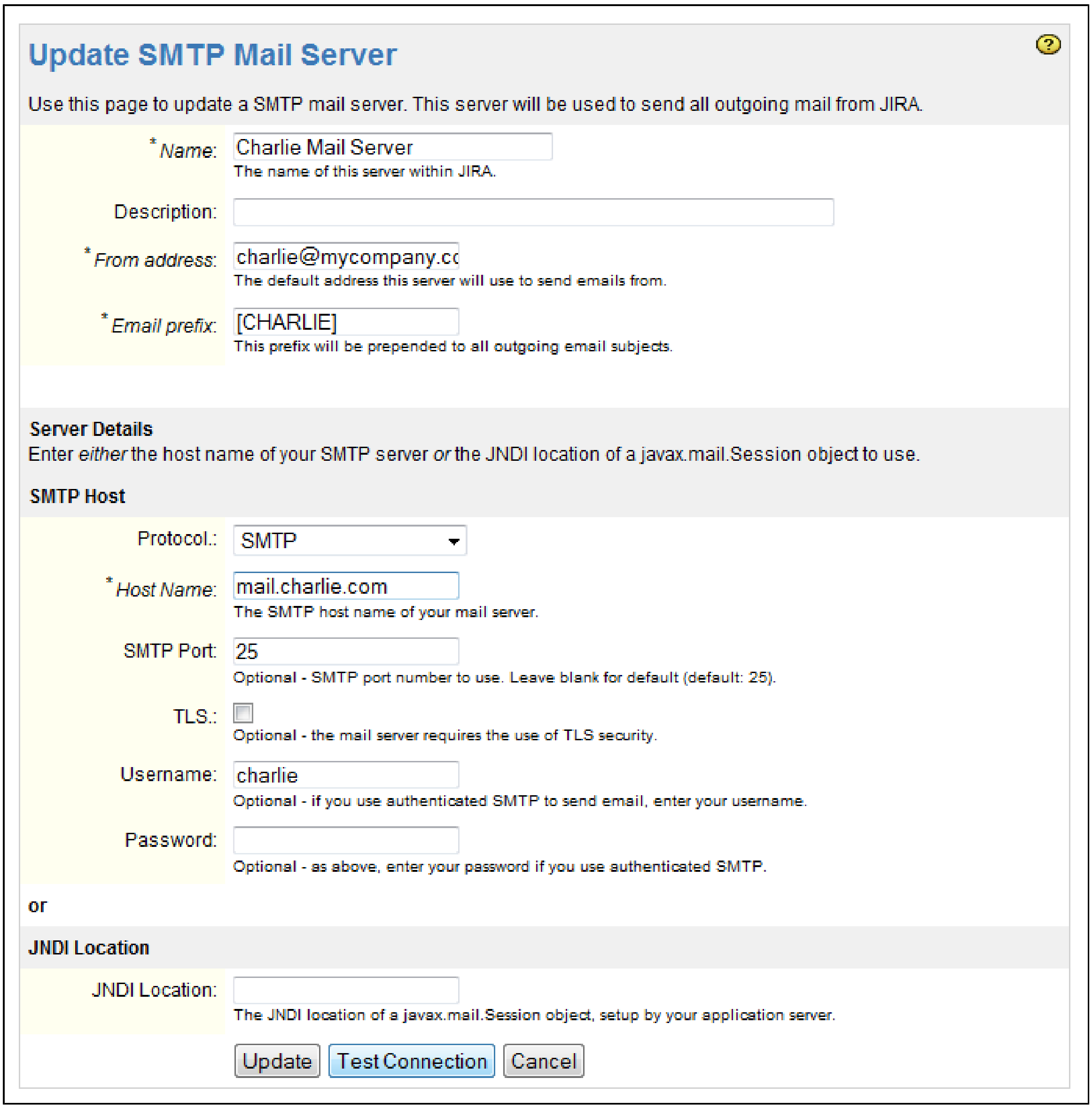

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REST API improvements

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Clients that log in through the REST API can now determine when the login has been denied due to a CAPTCHA requirement: the HTTP header `X-Authentication-Denied-Reason` has all the necessary information.

^Top

Other Enhancements and Fixes

For the list of issues resolved in JIRA 4.3 so far, click here.

^Top

JIRA 4.2 EAP 4 Release Notes

4 August 2010

JIRA 4.2 EAP 4 (a.k.a 4.2 milestone 9) is a public development release leading up to **JIRA 4.2**. For all production use and testing of JIRA, please use the latest official release.

An **Early Access Preview (EAP) release** is a public development release leading up to the official release of a JIRA version. Development releases are a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release.

Do not use in production
EAP releases should not be used in production environments as they are not officially supported.

Please also take note of the following information:

- **EAP Releases are Not Safe** — EAP releases are snapshots of the ongoing JIRA development process. As such:
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- **No Upgrade Path** — Because EAP releases represent work in progress, we **can not** provide a supported upgrade path between EAP releases, or from any EAP to the eventual final release. Thus, any data you store in a JIRA EAP release may not be able to be migrated to a future JIRA release.

GreenHopper Support
Please be aware that GreenHopper 5.0.1 is not compatible with the JIRA 4.2 EAP 4 release.

The Atlassian team is proud to bring you the JIRA 4.2 EAP 4 release. We are getting closer to the final release of JIRA 4.2, but we want your feedback.

Time-tracking is now much more flexible: you can edit the Original Estimate, and set the Remaining Estimate to zero on resolving an issue. You can also log work via workflow 'transition' screens — which are now provided as in-place dialogs rather than separate screens. For the mouse-averse, the new 'Operations Dialog' provides access to all menu options via the keyboard. The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users — and everyone else who likes to label their JIRA issues. Dashboard Publish/Subscribe with Confluence is also included.

Note to developers: JIRA 4.2 includes Atlassian Plugin Framework version 2.5.

Note to partners and translators: The preliminary translation diff files will be made available when we release JIRA 4.2 beta in the coming weeks.

Highlights of JIRA 4.2 :

- Dialogs for Common Actions and Workflow Operations
- Dialogs in the Issue Navigator
- 'Operations Dialog' Replaces the Mouse
- Improvements to the 'View Issue' Screen
- Attachment Sorting by Date or Name
- Viewable Files in Zipped Attachments
- 'Log Work' Improvements
- Improvements to the Issue Navigator
- New JQL Functions
- 'Filter' Gadget creation via the Issue Navigator
- More Keyboard Shortcuts
- User Avatars and User Hover
- Labels Now Included
- Other Enhancements and Fixes

Thank you for your interest in JIRA 4.2 EAP 4
Download EAP

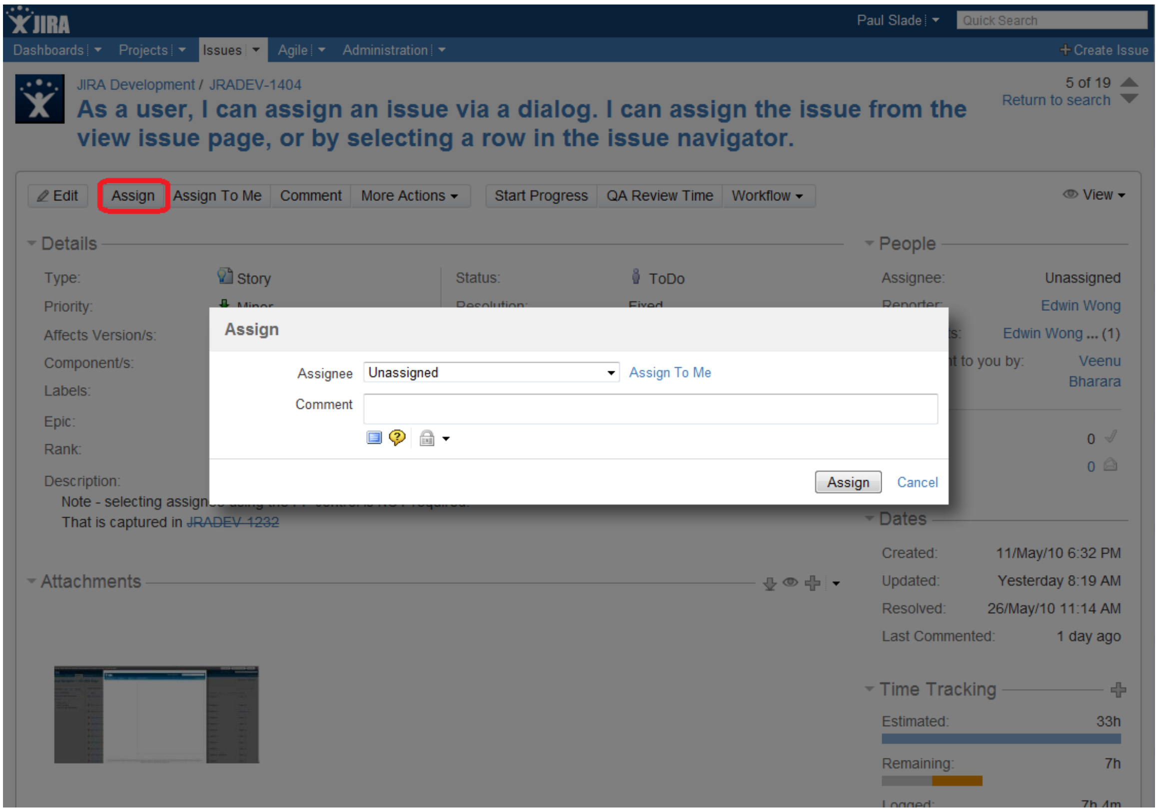
Upgrading to JIRA 4.2 EAP 4
JIRA EAP releases are available here. To upgrade from JIRA 4.1.x to this release, please follow the normal JIRA Upgrade Guide.

Highlights of JIRA 4.2

1

Dialogs for Common Actions and Workflow Operations

For faster edits to an issue, pop-up dialogs have replaced screen changes:



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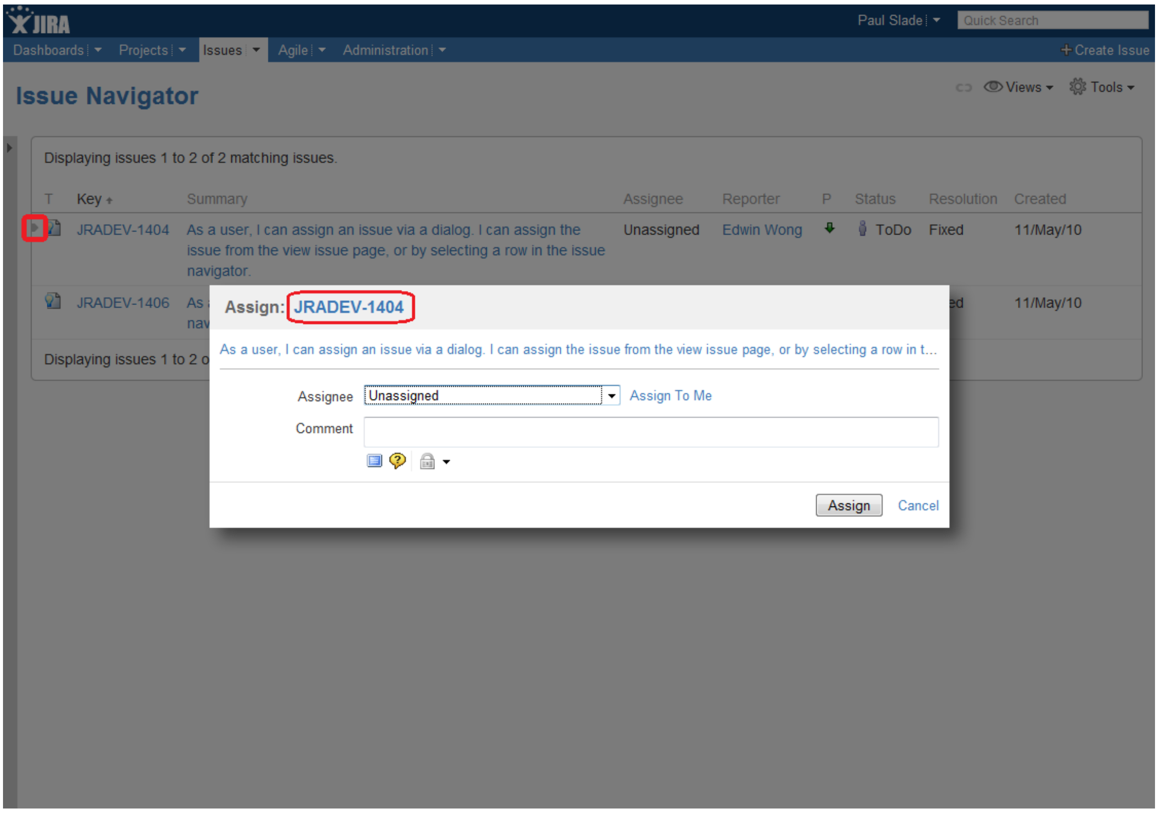
2

Dialogs in the Issue Navigator

You can now perform an action on an issue, via a dialog, directly from the Issue Navigator — without opening the issue first. The issue marker shows which issue you have selected (via your keyboard) in the result list.



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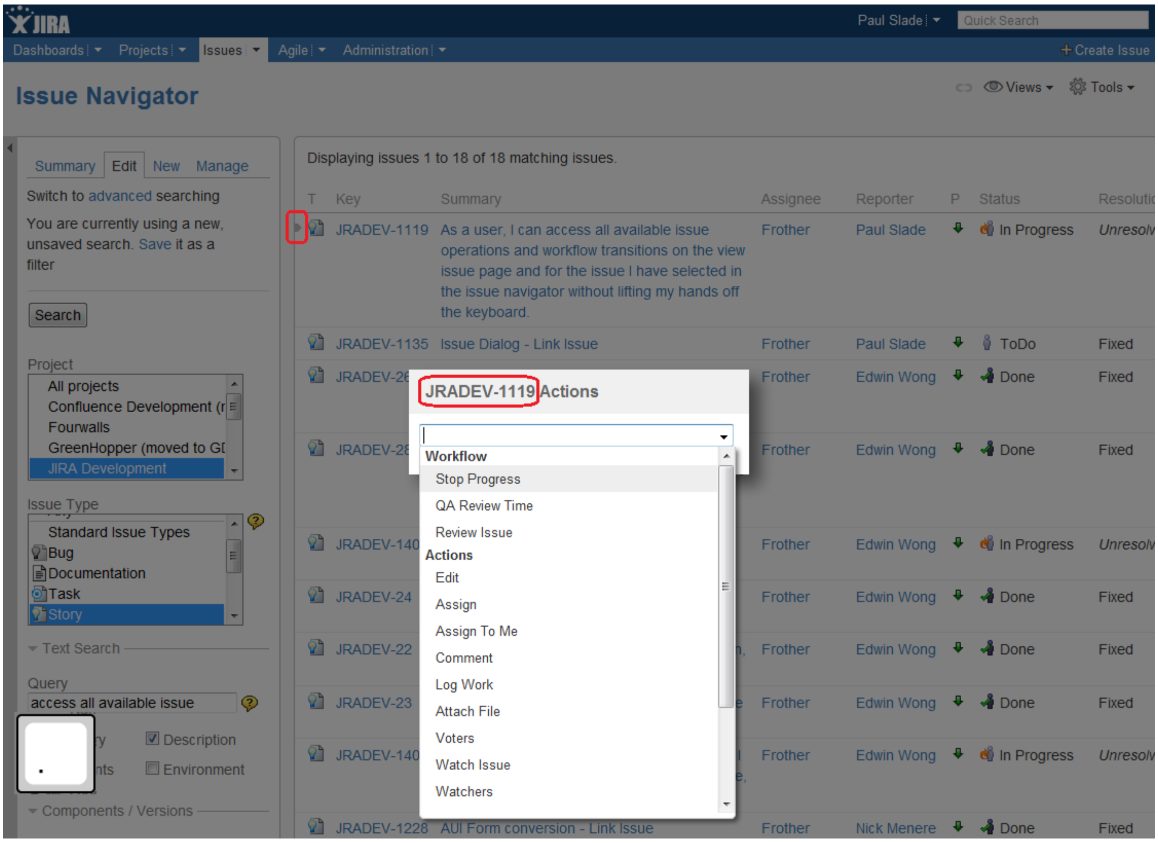
3

'Operations Dialog' Replaces the Mouse

The new 'Operations Dialog' lets you perform actions via the keyboard (instead of the mouse), using the full-stop ('dot') key to access the 'Actions' and 'Workflow' menus. The Operations Dialog works from the Issue Navigator and also when viewing an individual issue.



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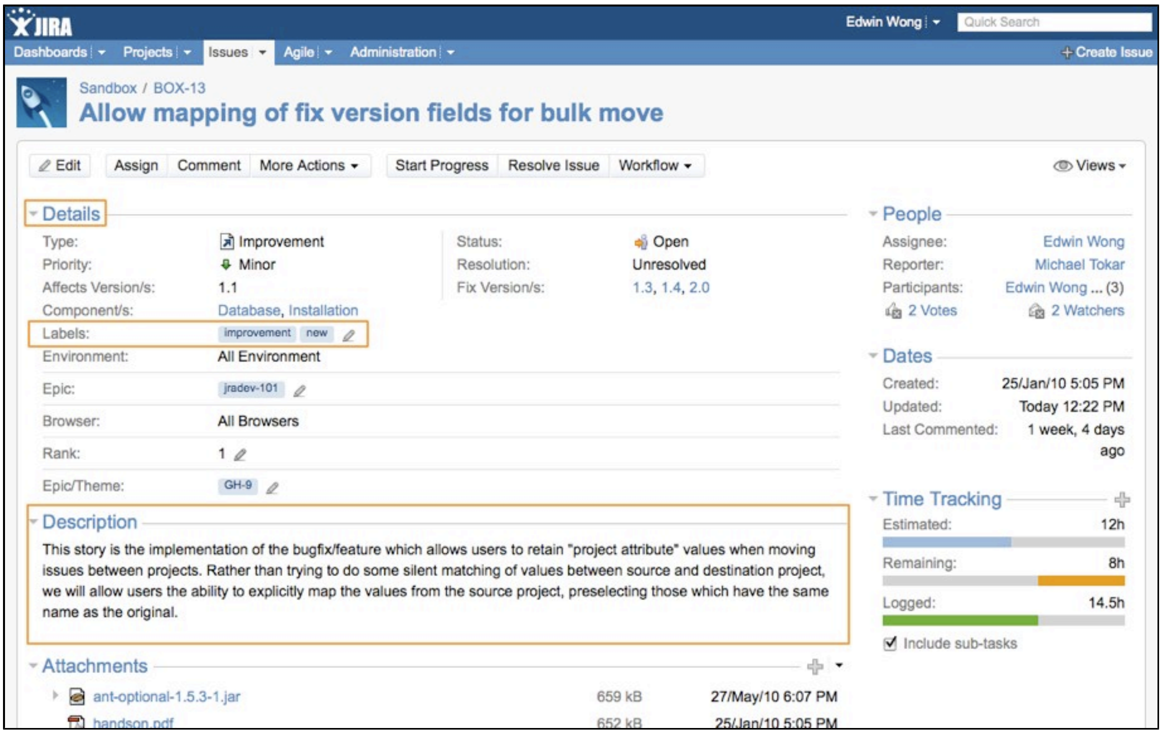
Improvements to the 'View Issue' Screen

We have improved the look and feel of the view issue screen even more. Some improvements include:

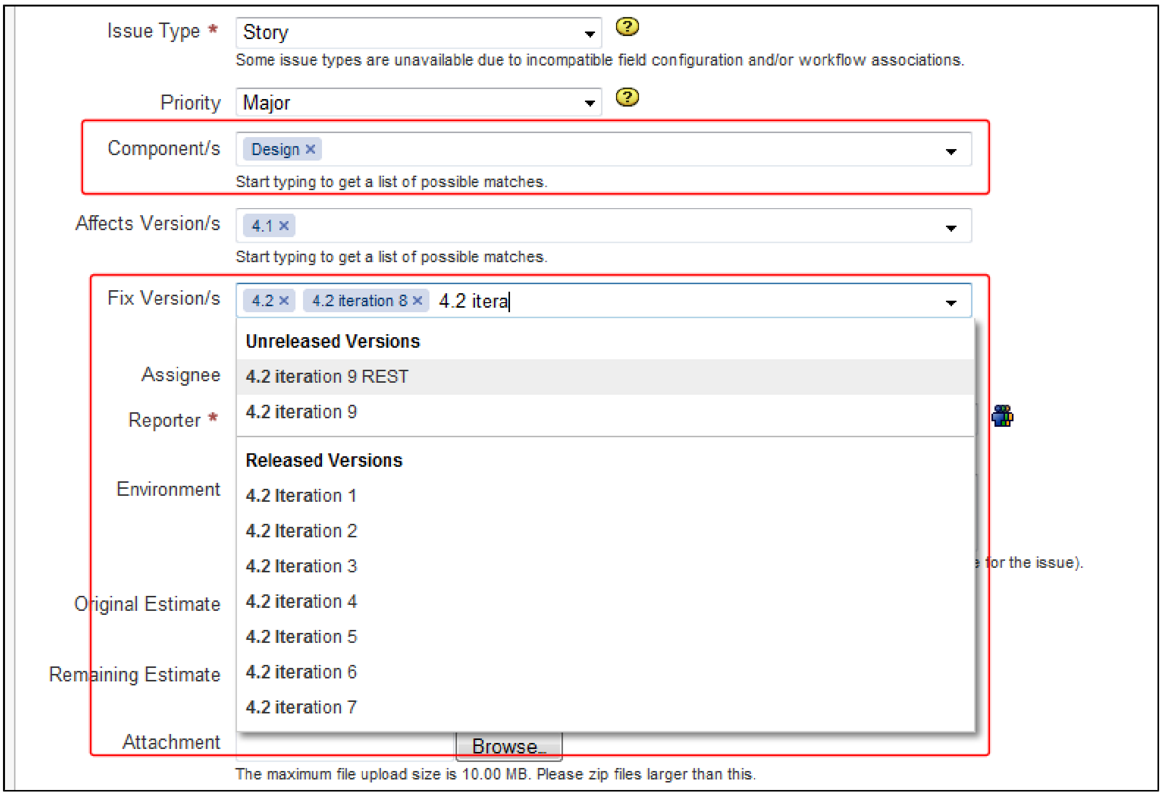
- A tighter spacing between lines to reduce space between elements
- Stronger section headings
- The description field separated into its own section
- Horizontal division lines between each custom field
- Votes and Watchers fields on the same line
- Labels represented as bubbles



Individual blocks can now be collapsed to streamline your issue view. The view state (i.e. which blocks are expanded/collapsed) will also be remembered across issues. After much feedback on the 4.1 updates to the 'View Issue' screen, you can now also add a comment at the bottom of the commenting section.

We've also updated the look and feel of the Components and Affects/Fix Versions lists in Edit mode. Upon typing into one of these fields, a dropdown menu appears with a list of options matching the first few characters you typed.

For convenience, the version lists are divided into **Released** and **Unreleased** categories.



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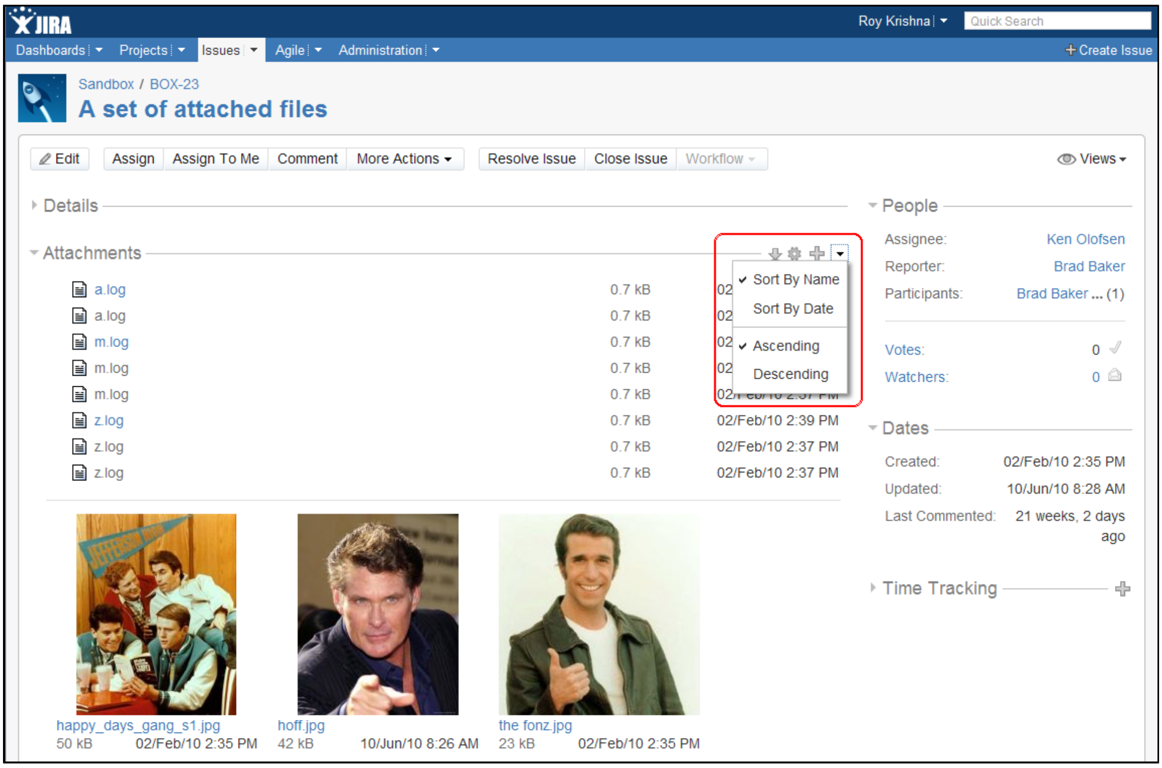
5

Attachment Sorting by Date or Name

Attachments can now be sorted by date or by name, in ascending or descending order.



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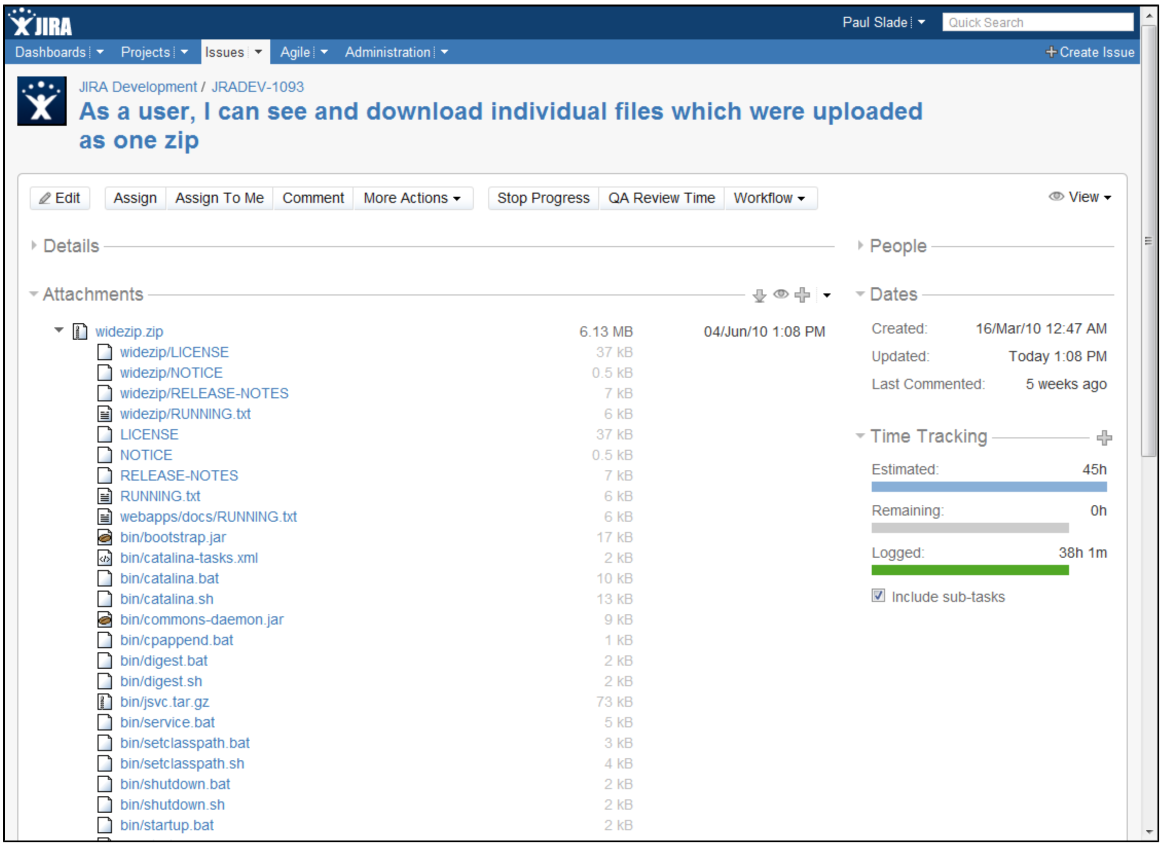
6

Viewable Files in Zipped Attachments

You can expand an attached zip file to see its contents. The first 30 files will be shown for larger zip files.



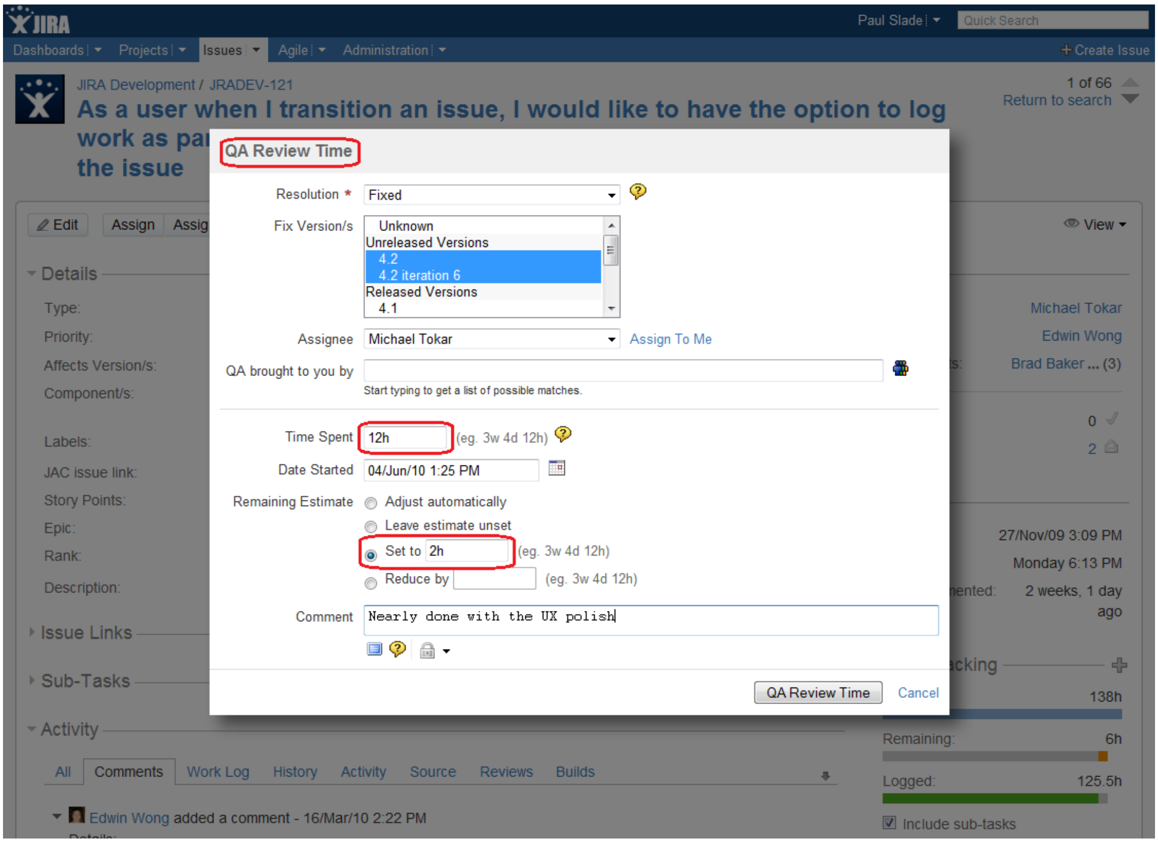
^Top

'Log Work' Improvements

You can now log work when you resolve an issue, saving you a step. You can also set the Remaining Estimate to 0 upon resolving an issue.

You now have the ability to edit the Original Estimate, even if work has been logged on an issue (not shown here).

We've also included the ability to add work log descriptions in wiki-markup (not shown here).

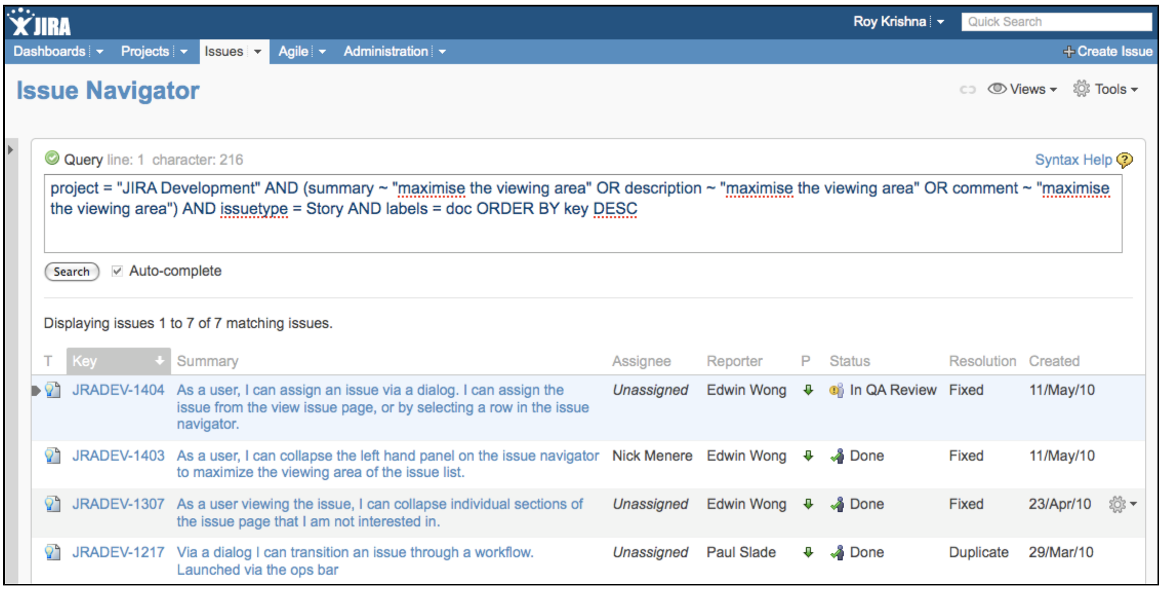


^Top

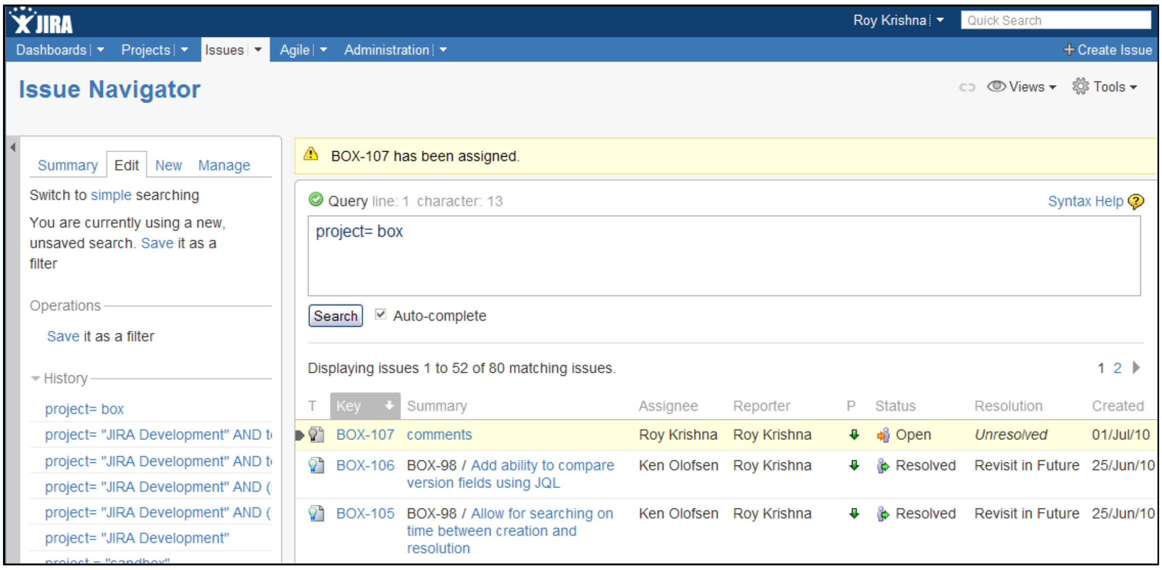
Improvements to the Issue Navigator

The Issue Navigator has been updated to match the look and feel of an issue.

We've also added: an issue marker and colour highlight for keyboard navigation (blue); colour highlight for mouse selection (grey); toggle to collapse the search form.



When a change is made via a dialog, JIRA will give you feedback on that change as confirmation.

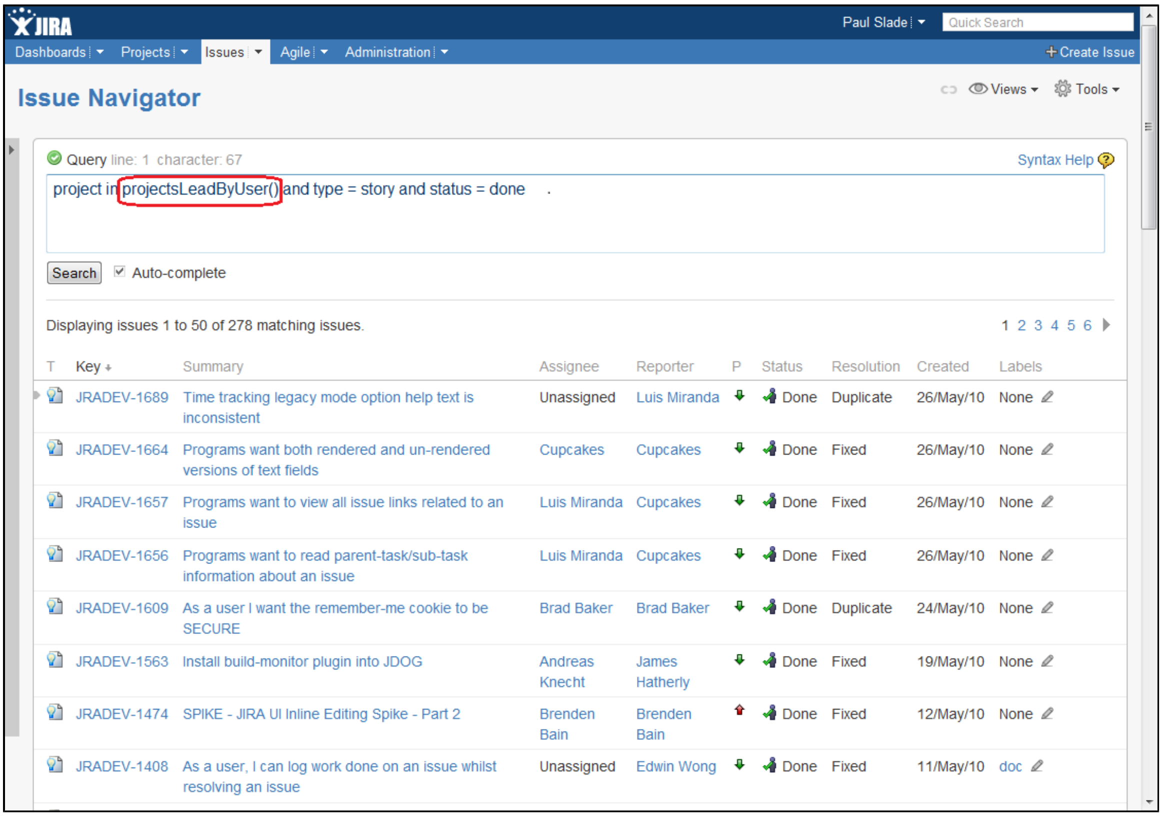


^Top

9

New JQL Functions

Additional JQL functions for projectLeadBy and componentsLeadBy — useful for finding all issues where a particular user is the lead of a component, or a project.

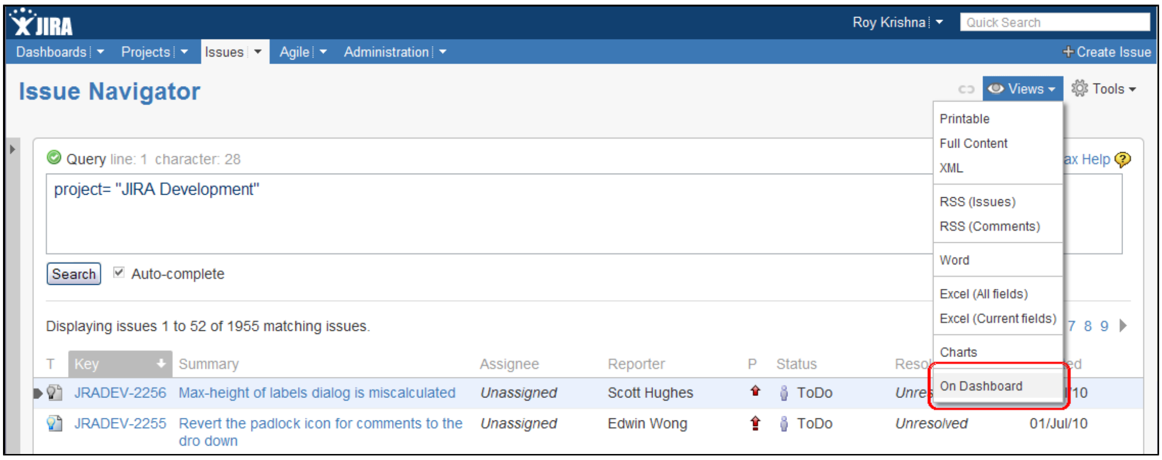


^Top

10

'Filter' Gadget creation via the Issue Navigator

When viewing search results, you can quickly add a 'Filter Results' gadget to your dashboard via the 'Views' menu.



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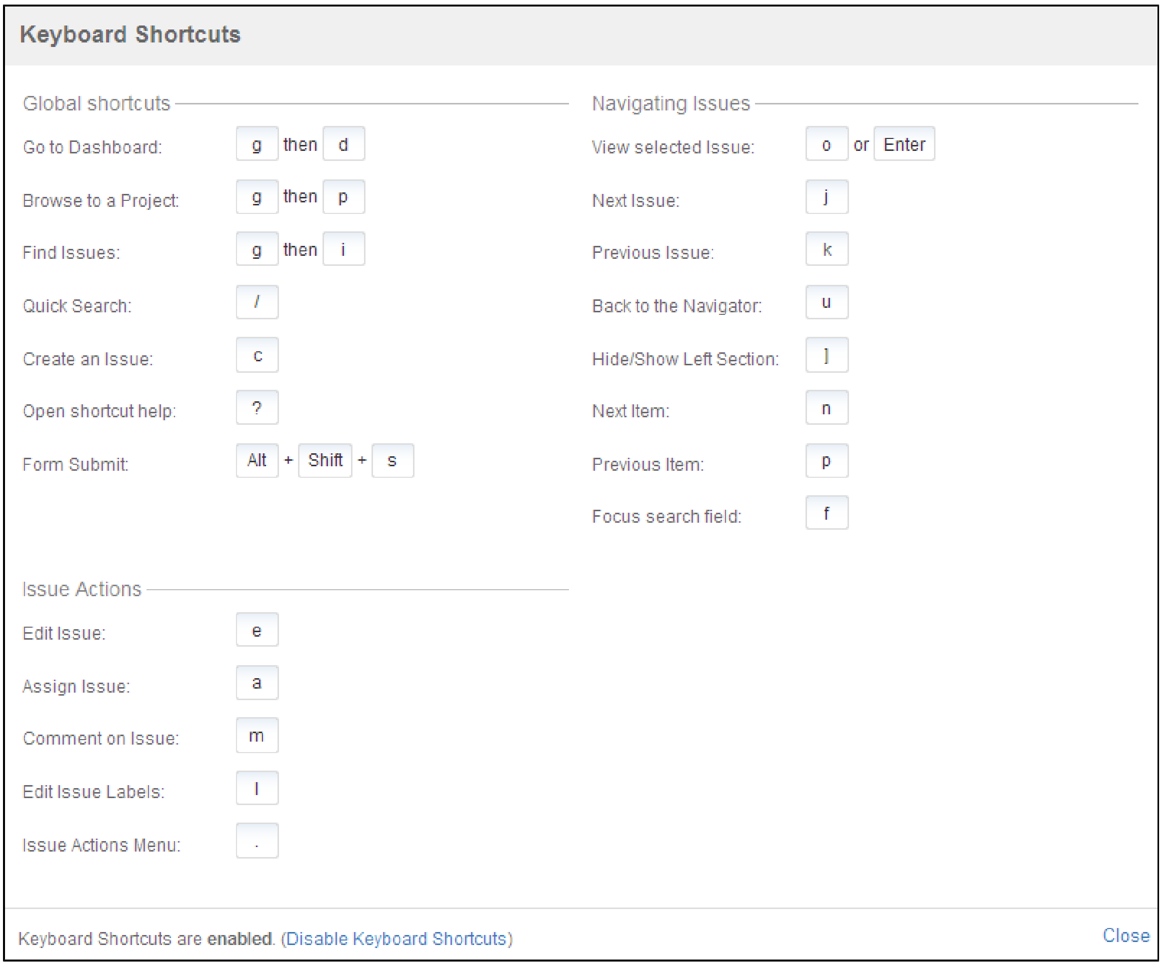
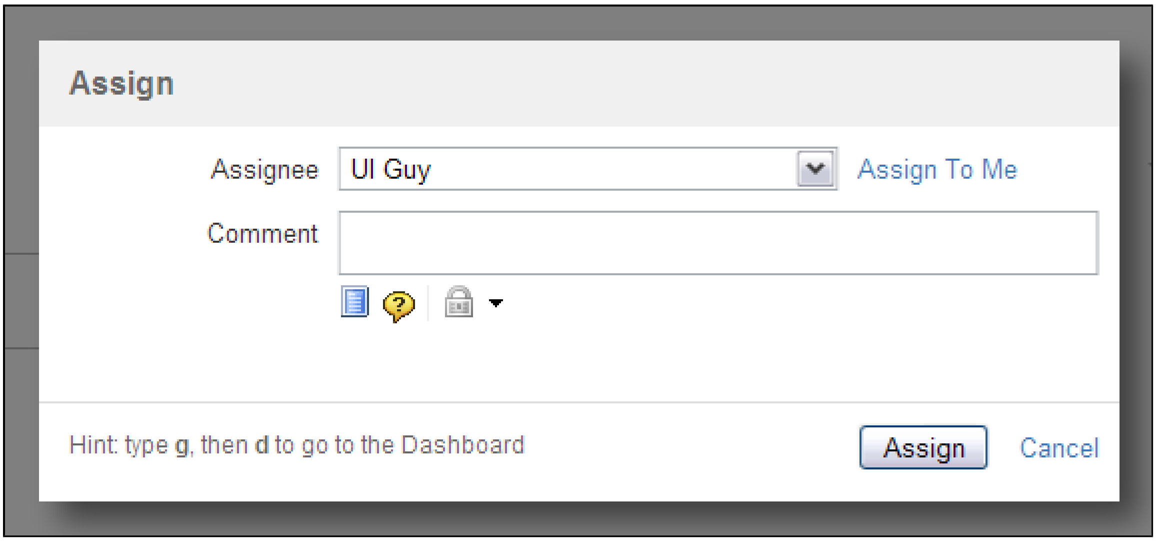
More Keyboard Shortcuts

JIRA users can now do more without a mouse --- perfect for those power users.



Hints also appear at the bottom of a dialog, helping you to learn keyboard shortcuts on the fly.

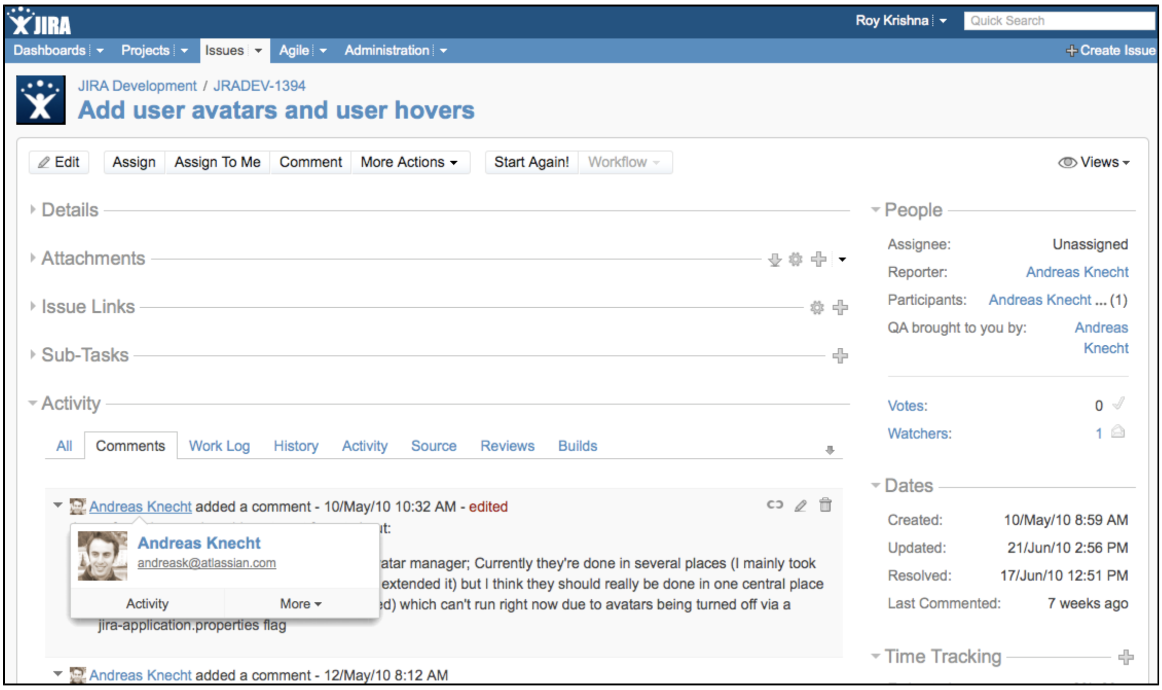


^Top

12

User Avatars and User Hover

JIRA users can now add an avatar to their profile. You can then mouse-hover over a user's name to show information about that user — this is available when viewing an issue, using the Issue Navigator, browsing a project, viewing activity, viewing a user profile and performing some administration tasks.

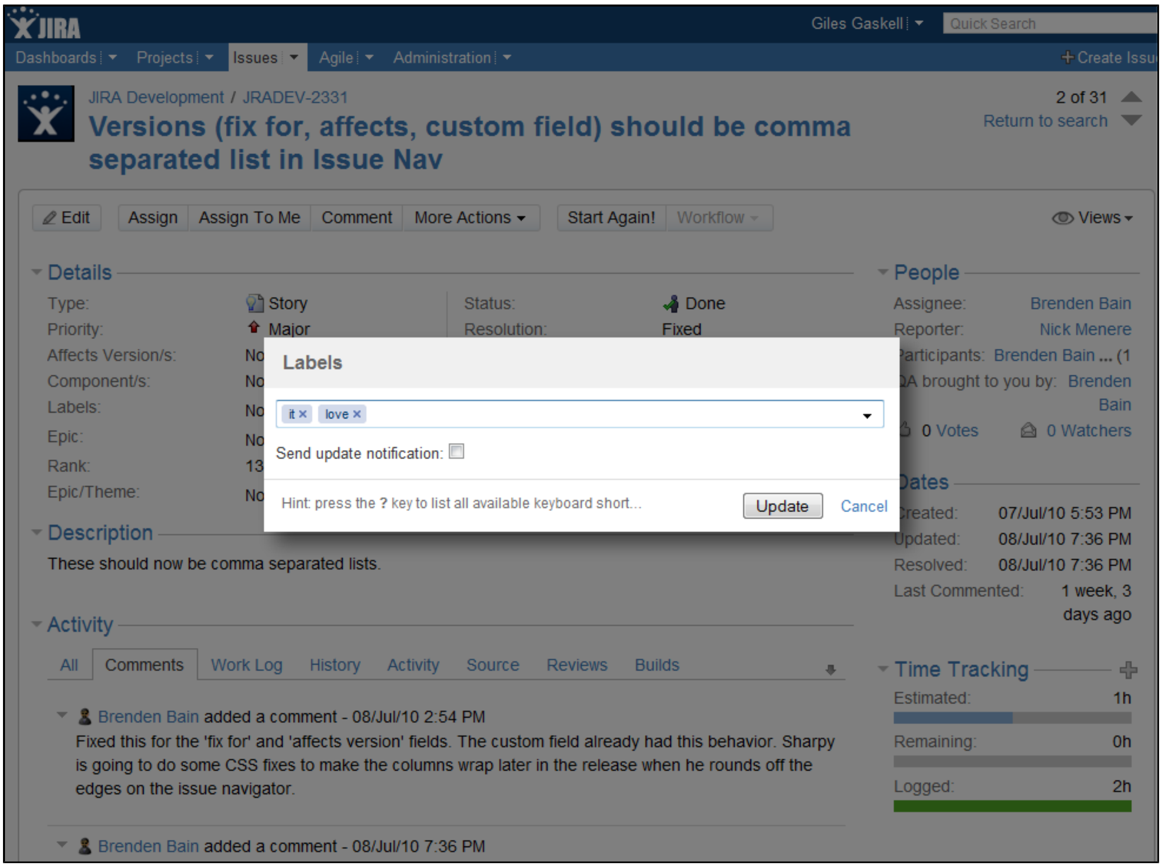


^Top

13

Labels Now Included

The functionality from the Labels plugin is now included in JIRA out-of-the-box. The labels dialog has a great new UI, and issue notifications are now optional when updating labels for an issue.



^Top

Other Enhancements and Fixes

Click here for the full list of issues resolved in 4.2.

^Top

JIRA 4.2 EAP 3 Release Notes

19 July 2010

JIRA 4.2 EAP 3 (a.k.a 4.2 milestone 8) is a public development release leading up to **JIRA 4.2**. For all production use and testing of JIRA, please use the latest official release.

An **Early Access Preview (EAP) release** is a public development release leading up to the official release of a JIRA version. Development releases are a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release.

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GreenHopper Support
Please be aware that GreenHopper 5.0.1 is not compatible with the JIRA 4.2 EAP 3 release.

The Atlassian team is proud to bring you the JIRA 4.2 EAP 3 release. We are getting closer to the final release of JIRA 4.2, but we want your feedback.

Time-tracking is now much more flexible: you can edit the Original Estimate, and set the Remaining Estimate to zero on resolving an issue. You can also log work via workflow 'transition' screens — which are now provided as in-place dialogs rather than separate screens. For the mouse-averse, the new 'Operations Dialog' provides access to all menu options via the keyboard. The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users — and everyone else who likes to label their JIRA issues. Dashboard Publish/Subscribe with Confluence is also included.

Note to developers: JIRA 4.2 includes Atlassian Plugin Framework version 2.5.

Note to partners and translators: The preliminary translation diff files will be made available when we release JIRA 4.2 beta in the coming weeks.

Highlights of JIRA 4.2 :

- Dialogs for Common Actions and Workflow Operations
- Dialogs in the Issue Navigator
- 'Operations Dialog' Replaces the Mouse
- Improvements to the 'View Issue' Screen
- Attachment Sorting by Date or Name
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- More Keyboard Shortcuts
- User Avatars and User Hover
- Labels Now Included
- Other Enhancements and Fixes

What's New in EAP 3

- For EAP 3, we've mainly focused on improving the view issue screen. Some highlights include:
  1. Reduced line height of text in the entire page.
  2. Stronger and colored section headings.
  3. Description field separated into its own separate section.
  4. Division lines for custom fields
  5. Labels as highlighted bubbles.
  6. Votes and Watchers fields on the same line.

- When creating or editing an issue, the versions fields now have the same look and feel as the component field.

- We've also reduced the size of labels in dialog boxes.

Thank you for your interest in JIRA 4.2 EAP 3
Download EAP

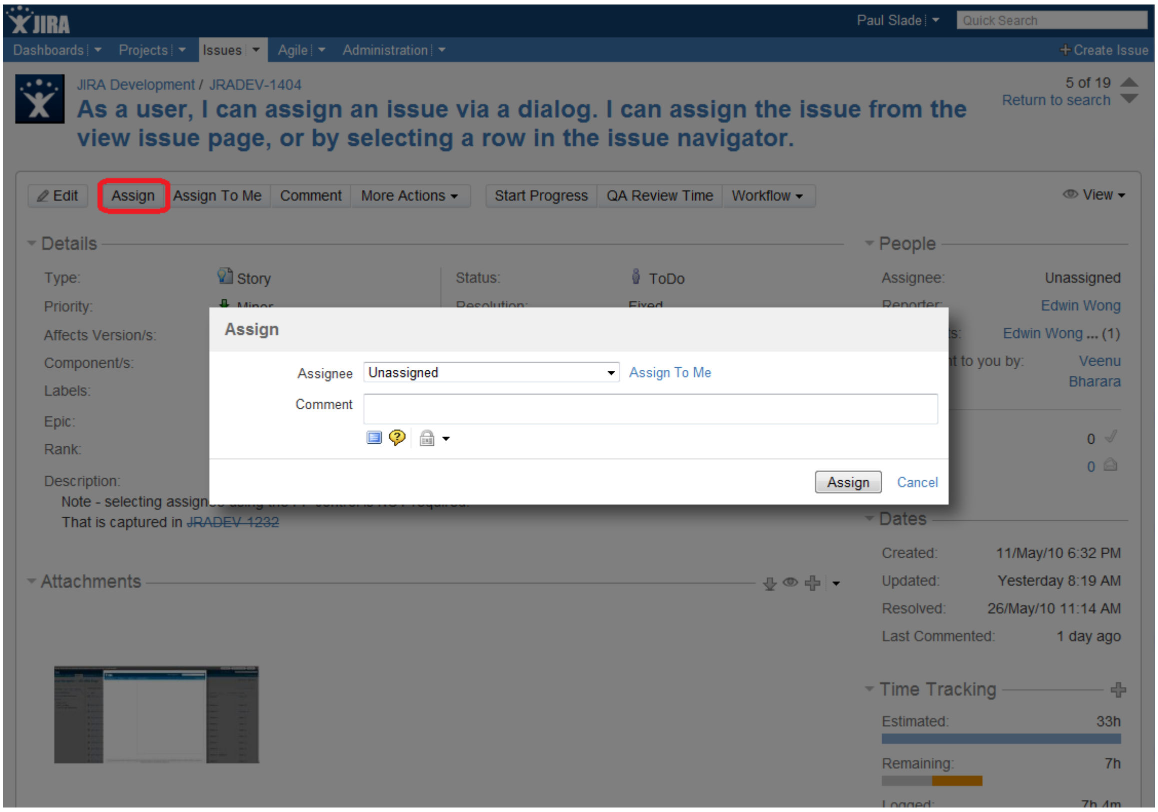
Upgrading to JIRA 4.2 EAP 3
JIRA EAP releases are available here. To upgrade from JIRA 4.1.x to this release, please follow the normal JIRA Upgrade Guide.

Highlights of JIRA 4.2

1

Dialogs for Common Actions and Workflow Operations

For faster edits to an issue, pop-up dialogs have replaced screen changes:



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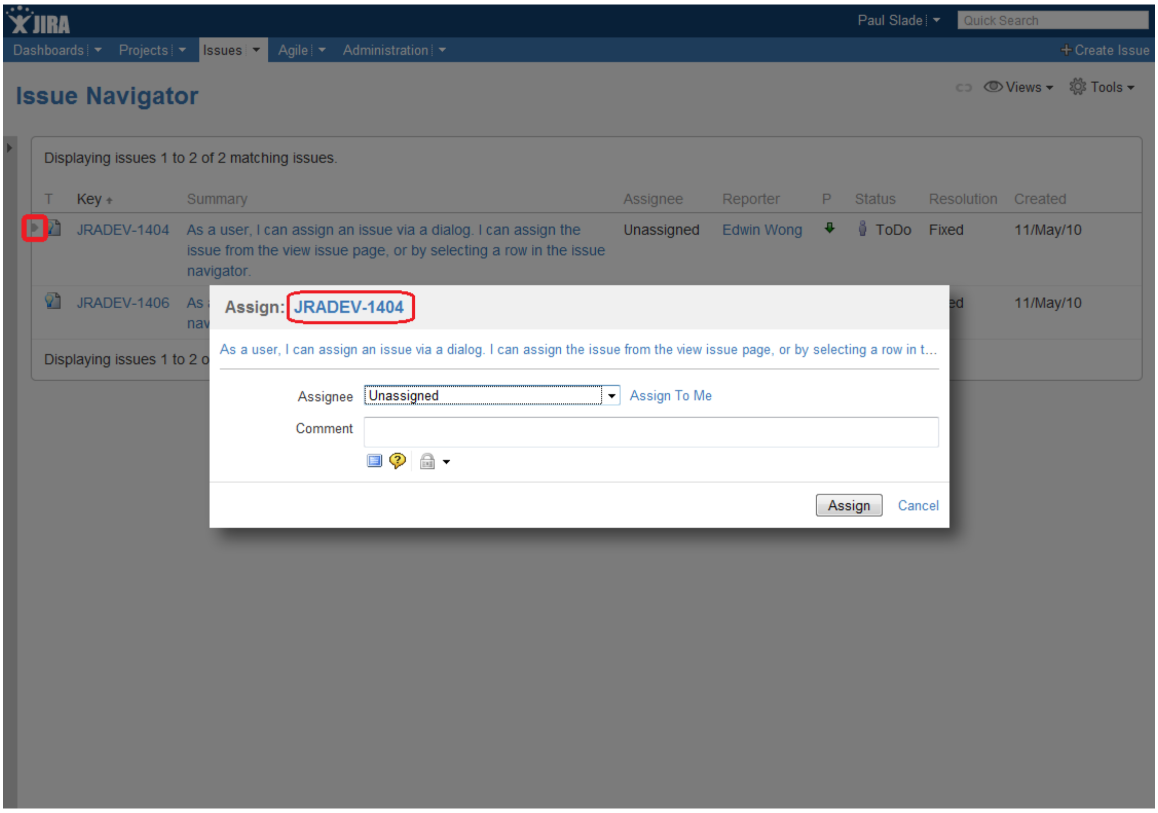

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'Operations Dialog' Replaces the Mouse

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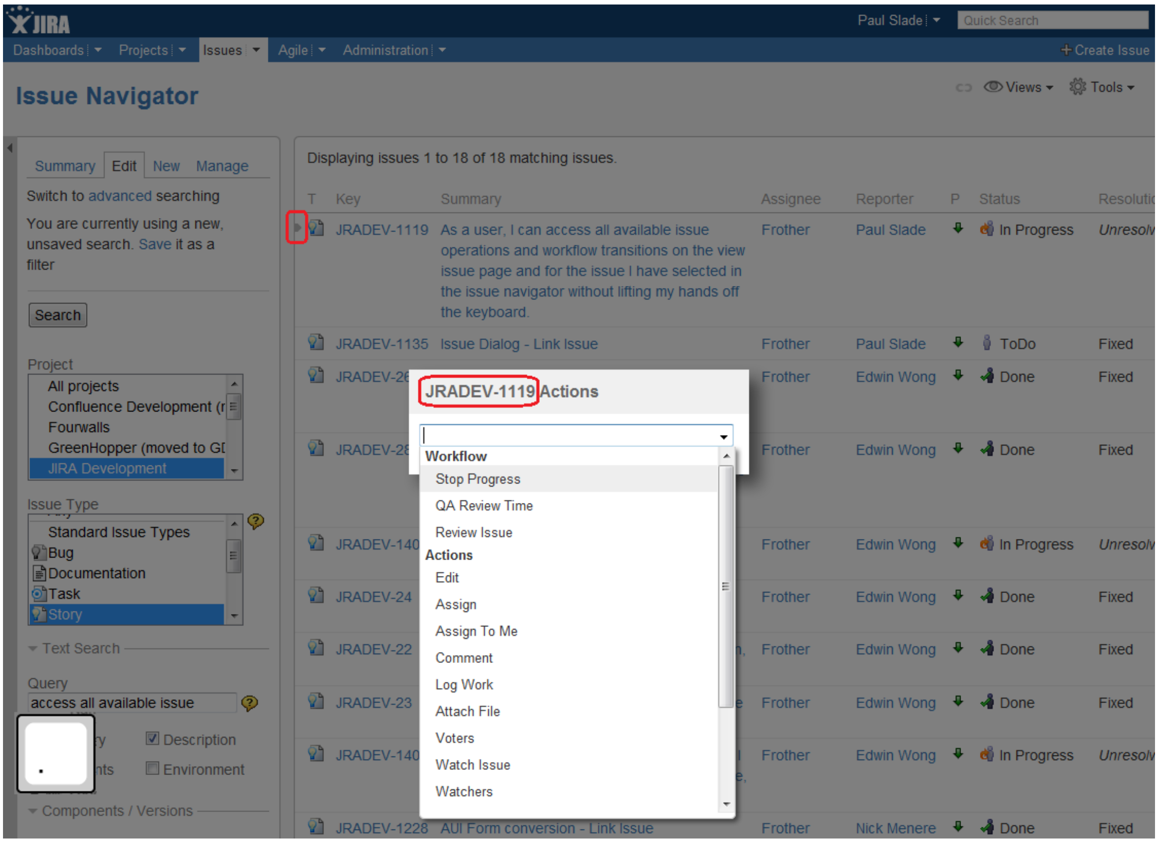

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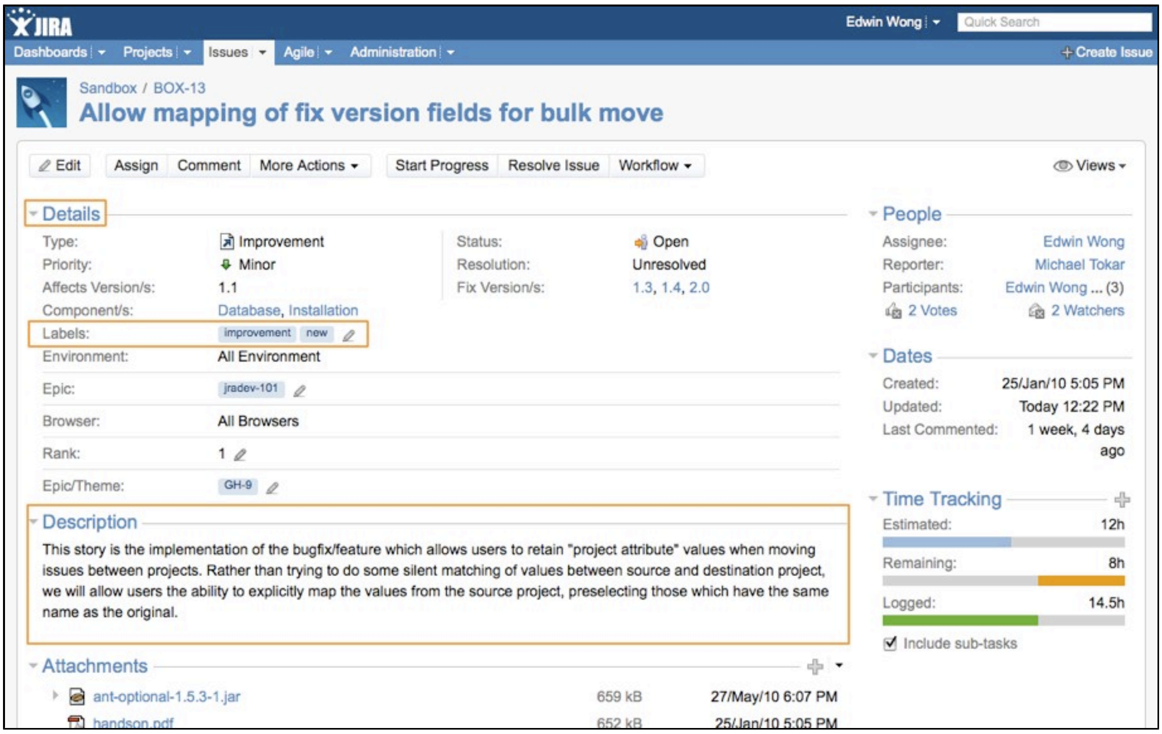
4

Improvements to the 'View Issue' Screen

We have improved the look and feel of the view issue screen even more. Some improvements include:

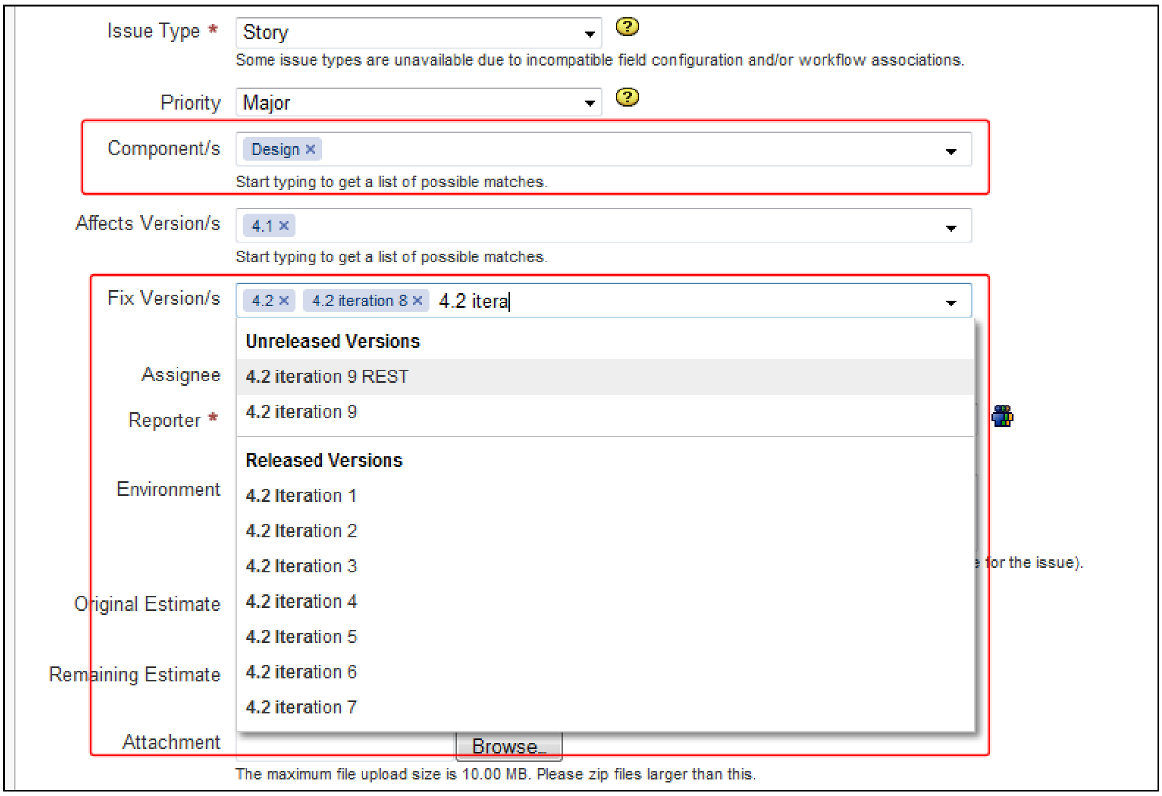
- A tighter spacing between lines to reduce space between elements
- Stronger section headings
- The description field separated into its own section
- Horizontal division lines between each custom field
- Votes and Watchers fields on the same line
- Labels represented as bubbles



Individual blocks can now be collapsed to streamline your issue view. The view state (i.e. which blocks are expanded/collapsed) will also be remembered across issues. After much feedback on the 4.1 updates to the 'View Issue' screen, you can now also add a comment at the bottom of the commenting section.

We've also updated the look and feel of the Components and Affects/Fix Versions lists in Edit mode. Upon typing into one of these fields, a dropdown menu appears with a list of options matching the first few characters you typed.

For convenience, the version lists are divided into **Released** and **Unreleased** categories.



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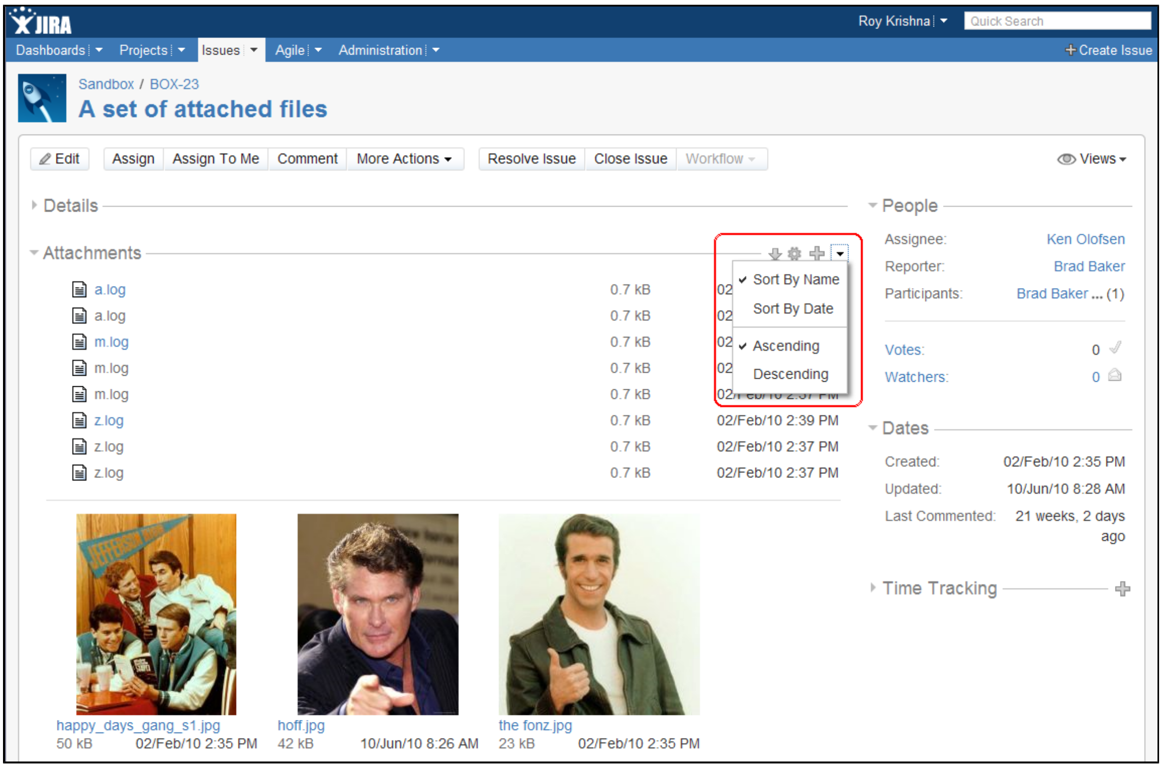
Attachment Sorting by Date or Name

Attachments can now be sorted by date or by name, in ascending or descending order.



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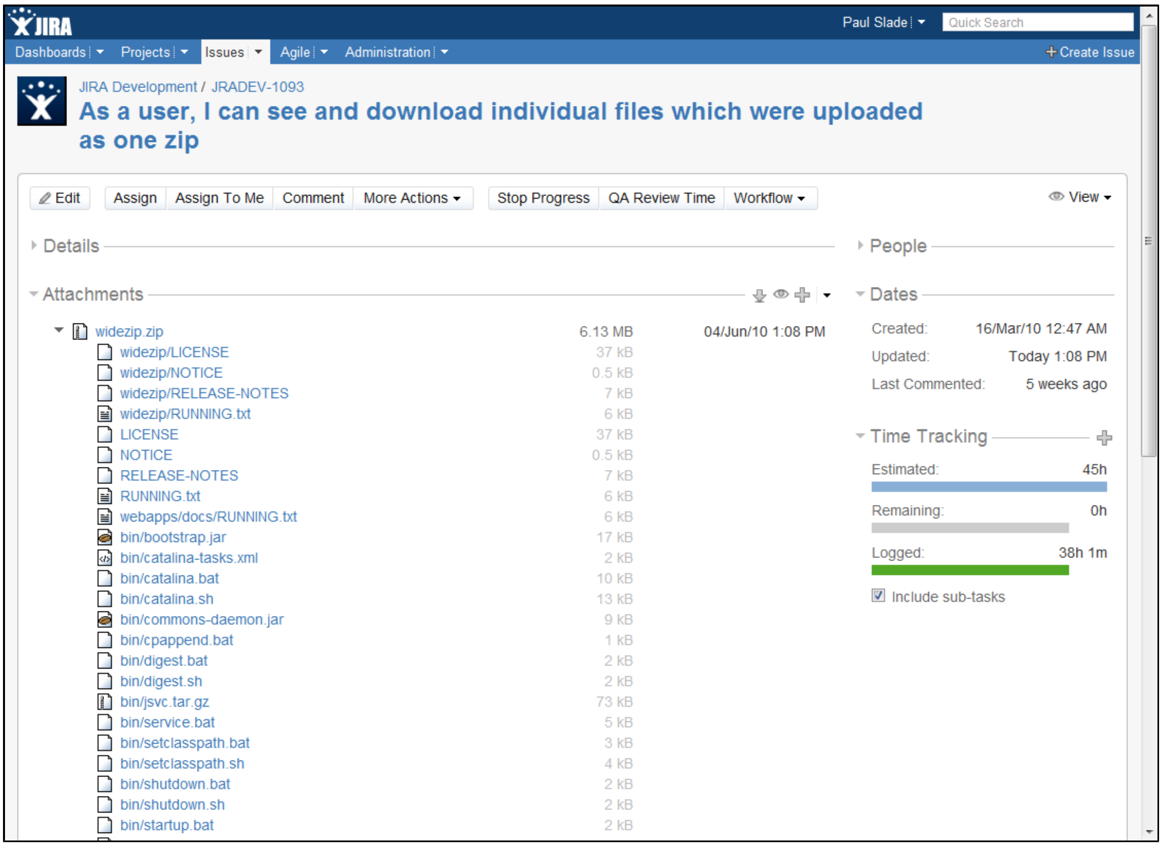
Viewable Files in Zipped Attachments

You can expand an attached zip file to see its contents. The first 30 files will be shown for larger zip files.



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You can now log work when you resolve an issue, saving you a step. You can also set the Remaining Estimate to 0 upon resolving an issue.

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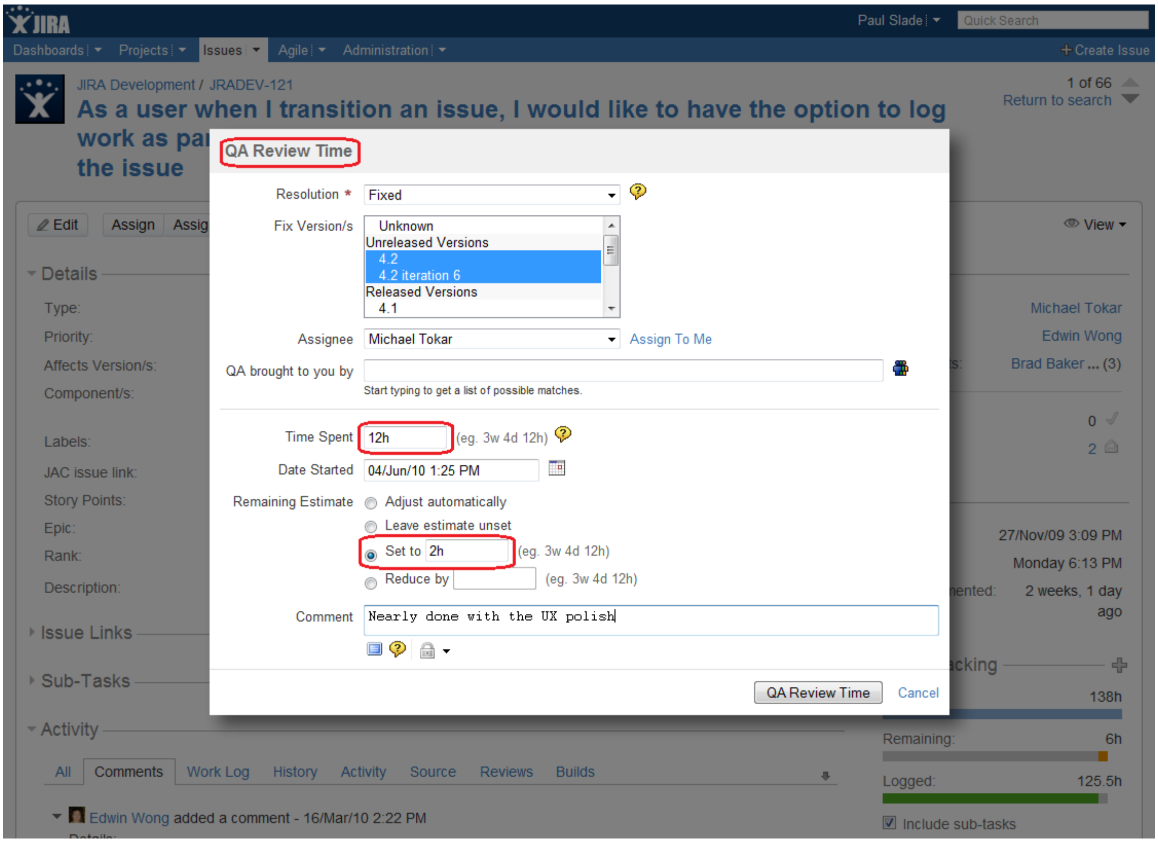

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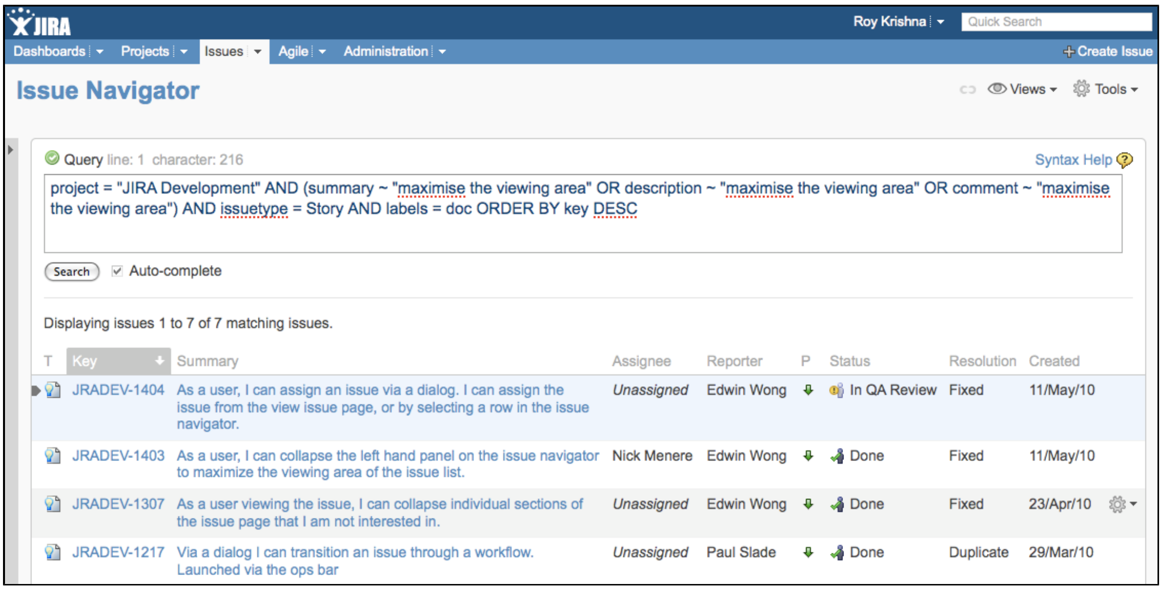
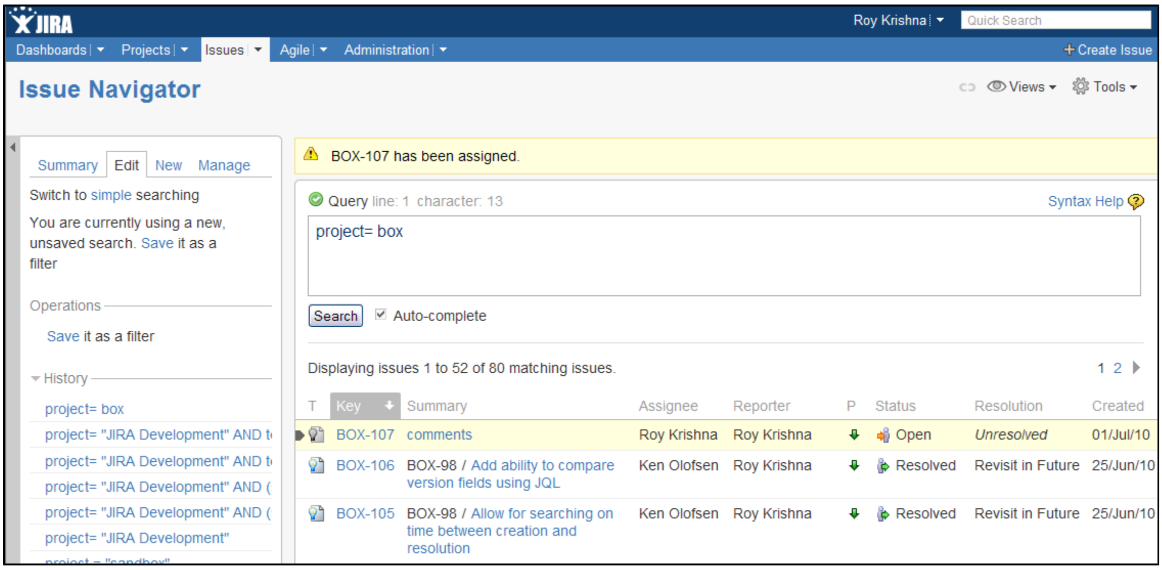
Improvements to the Issue Navigator

The Issue Navigator has been updated to match the look and feel of an issue.

We've also added: an issue marker and colour highlight for keyboard navigation (blue); colour highlight for mouse selection (grey); toggle to collapse the search form.



When a change is made via a dialog, JIRA will give you feedback on that change as confirmation.



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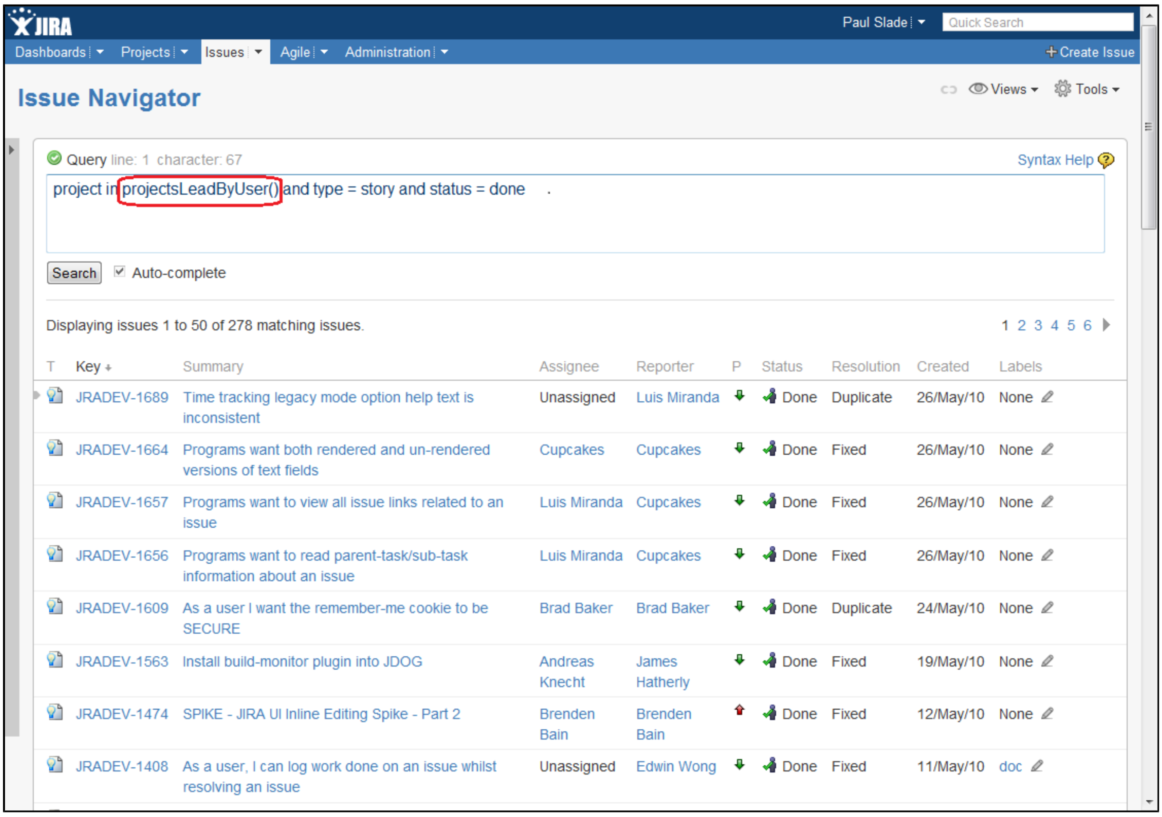
New JQL Functions

Additional JQL functions for projectLeadBy and componentsLeadBy — useful for finding all issues where a particular user is the lead of a component, or a project.



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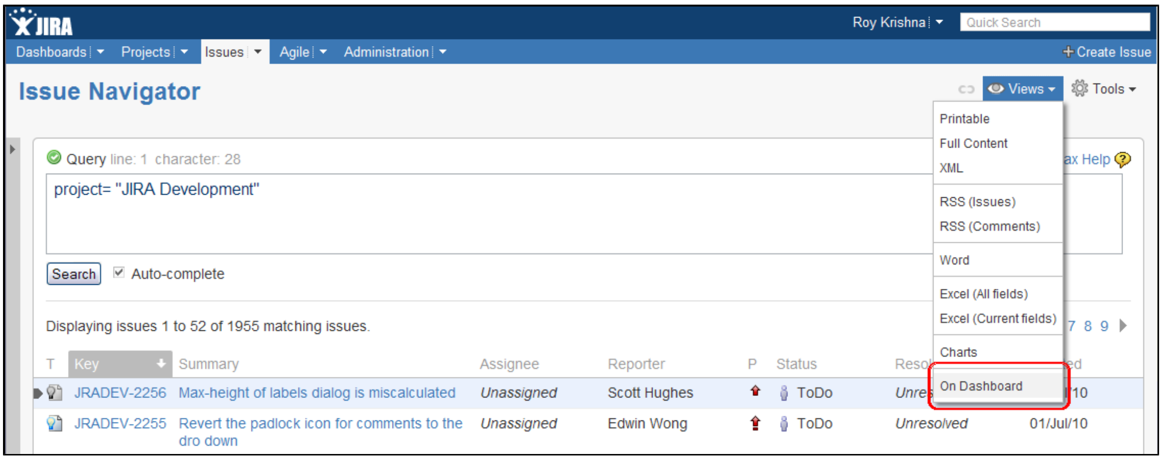
'Filter' Gadget creation via the Issue Navigator

When viewing search results, you can quickly add a 'Filter Results' gadget to your dashboard via the 'Views' menu.



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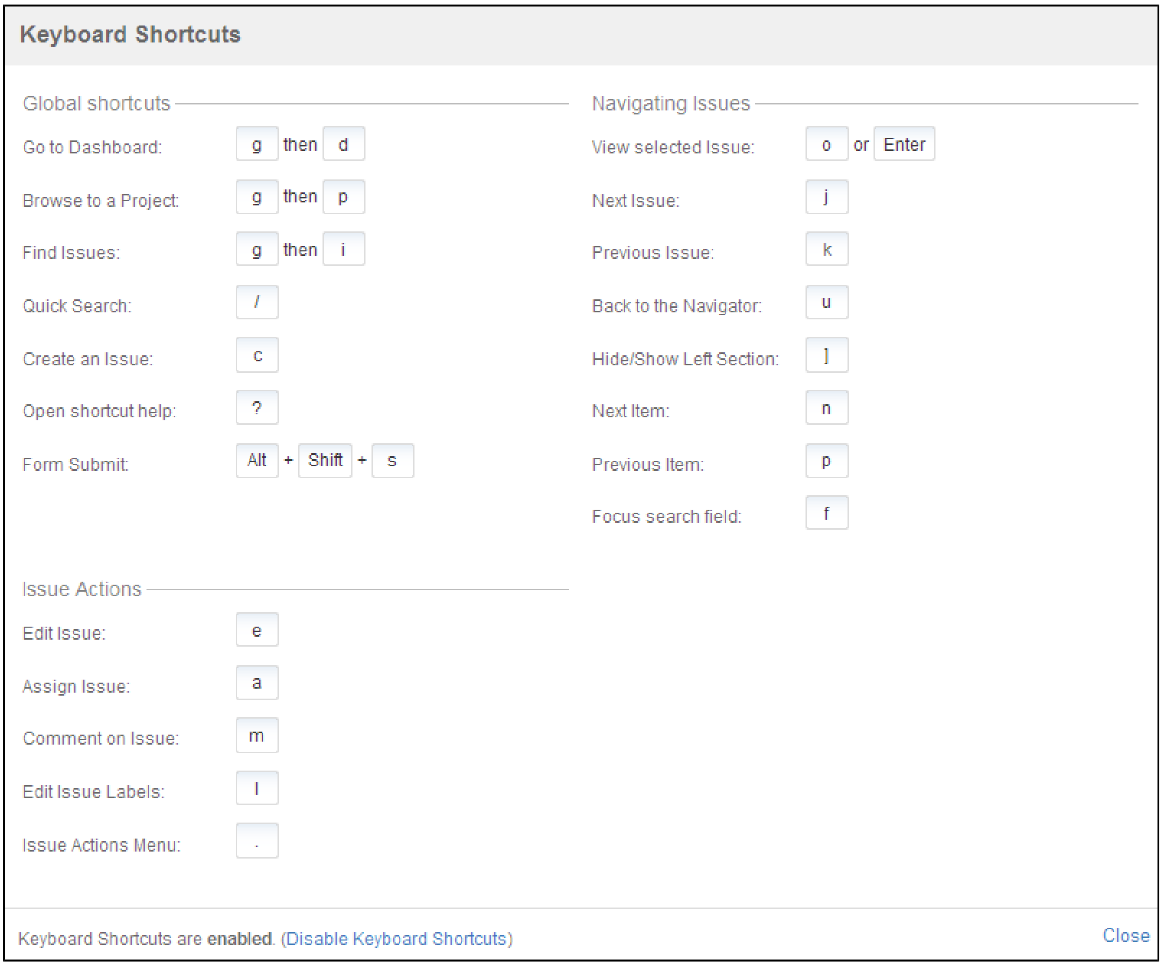

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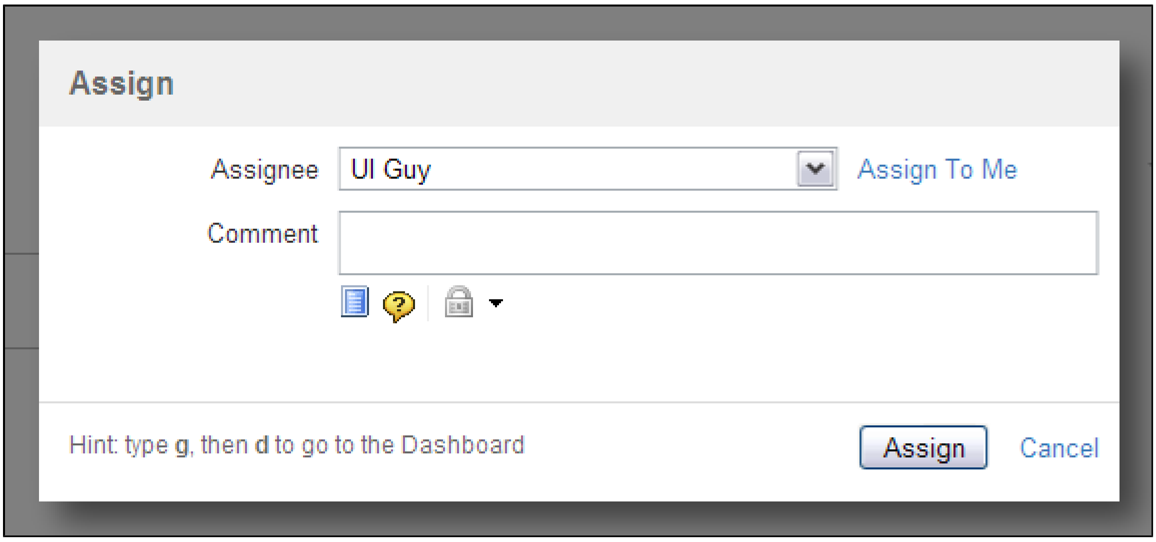

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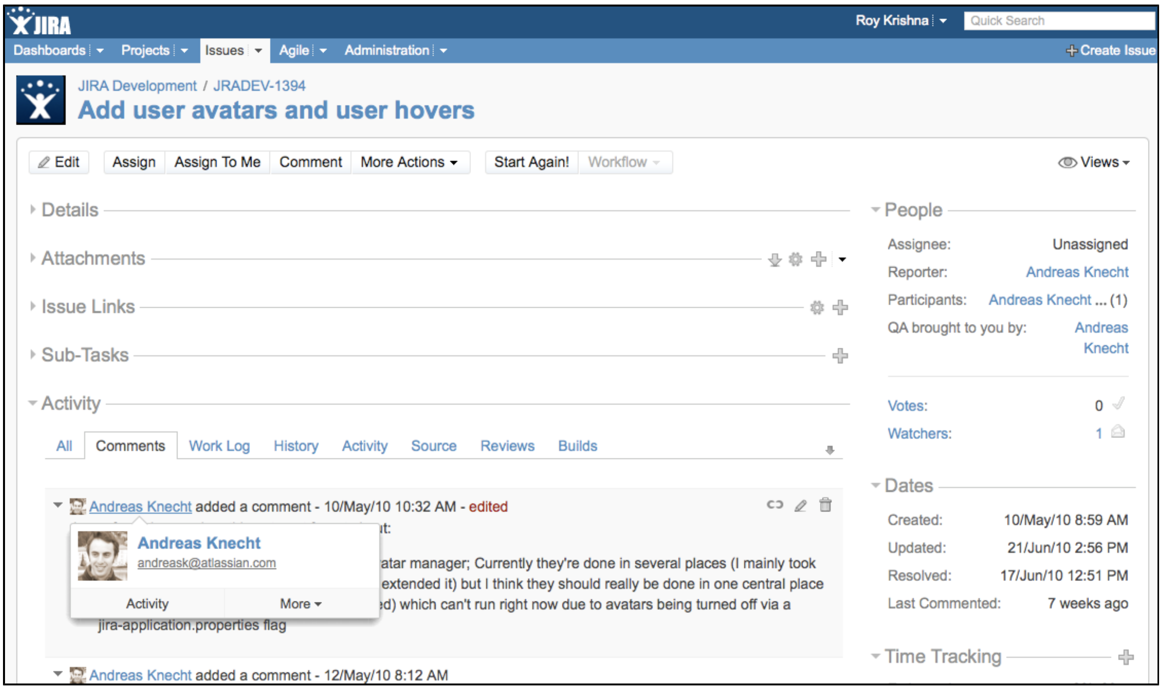
12

User Avatars and User Hover

JIRA users can now add an avatar to their profile. You can then mouse-hover over a user's name to show information about that user — this is available when viewing an issue, using the Issue Navigator, browsing a project, viewing activity, viewing a user profile and performing some administration tasks.



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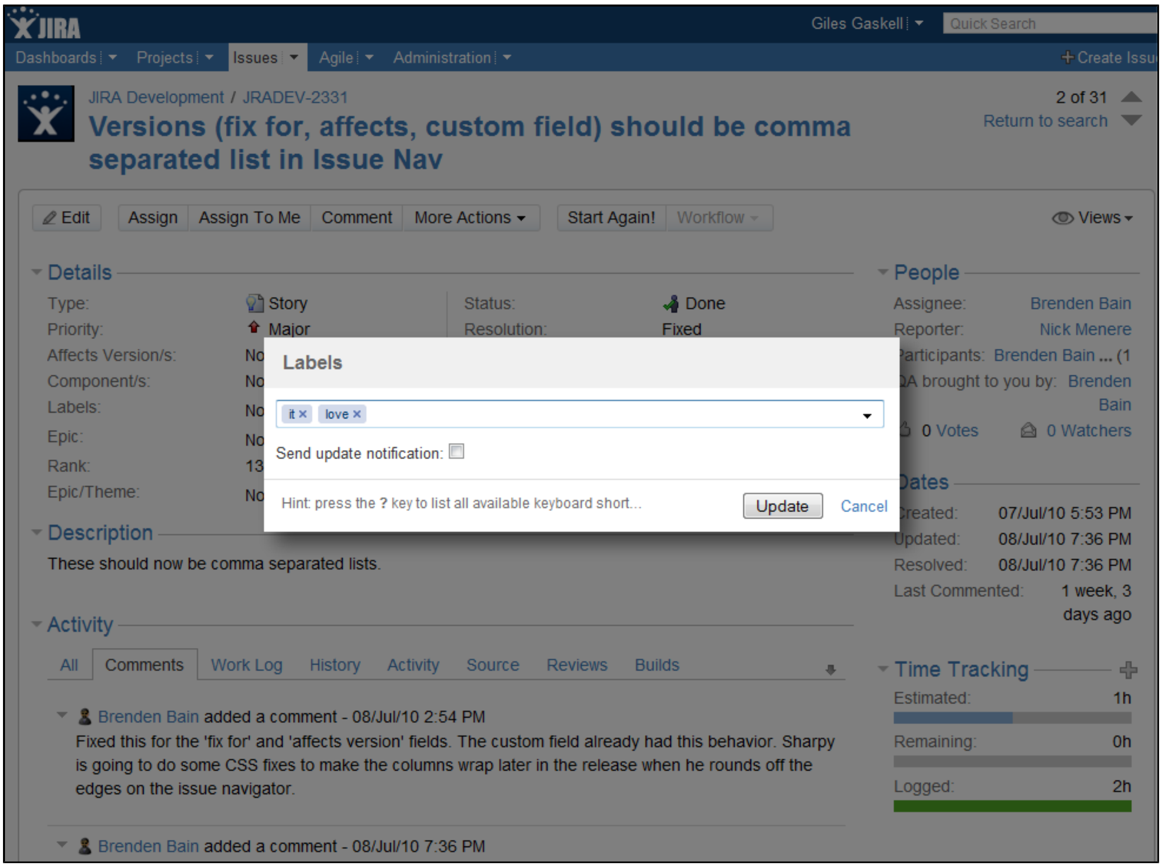
Labels Now Included

The functionality from the Labels plugin is now included in JIRA out-of-the-box. The labels dialog has a great new UI, and issue notifications are now optional when updating labels for an issue.



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Other Enhancements and Fixes

Click here for the full list of issues resolved in 4.2.

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JIRA 4.2 EAP 2 Release Notes

6 July 2010

JIRA 4.2 EAP 2 (a.k.a 4.2 milestone 7) is a public development release leading up to **JIRA 4.2**. For all production use and testing of JIRA, please use the latest official release.

An **Early Access Preview (EAP) release** is a public development release leading up to the official release of a JIRA version. Development releases are a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release.

> **Do not use in production**
> EAP releases should not be used in production environments as they are not officially supported.

Please also take note of the following information:

- **EAP Releases are Not Safe** — EAP releases are snapshots of the ongoing JIRA development process. As such:
  - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
  - Features in development releases may be incomplete, or may change or be removed before the next full release.
- **No Upgrade Path** — Because EAP releases represent work in progress, we **can not** provide a supported upgrade path between EAP releases, or from any EAP to the eventual final release. Thus, any data you store in a JIRA EAP release may not be able to be migrated to a future JIRA release.

GreenHopper Support
Please be aware that GreenHopper 5.0.1 is not compatible with the JIRA 4.2 EAP 2 release.

The Atlassian team is proud to bring you the JIRA 4.2 EAP 2 release. We still have a little more work to do, but overall, this is how 4.2 will look when it gets rolled out later this year. And we want your feedback.

Time-tracking is now much more flexible: you can edit the Original Estimate, and set the Remaining Estimate to zero on resolving an issue. You can also log work via workflow 'transition' screens — which are now provided as in-place dialogs rather than separate screens. For the mouse-averse, the new 'Operations Dialog' provides access to all menu options via the keyboard. The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users — and everyone else who likes to label their JIRA issues. Dashboard Publish/Subscribe with Confluence is also included.

Note to developers: JIRA 4.2 includes Atlassian Plugin Framework version 2.5.

Note to partners and translators: The preliminary translation diff files will be made available when we release JIRA 4.2 beta in the coming weeks.

Highlights of JIRA 4.2 EAP 2:

- Dialogs for Common Actions and Workflow Operations
- Dialogs in the Issue Navigator
- 'Operations Dialog' Replaces the Mouse
- Improvements to the 'View Issue' Screen
- Attachment Sorting by Date or Name
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What's New in JIRA 4.2 EAP 2

1. Components Look and Feel update.
2. Colour highlight for keyboard navigation (blue).
3. Feedback on changes made via dialogs in the issue navigator as confirmation.
4. Ability to add work log descriptions in wiki-markup (no screenshot).

Thank you for your interest in JIRA 4.2 EAP 2
Download EAP

Upgrading to JIRA 4.2 EAP 2
JIRA EAP releases are available here. To upgrade from JIRA 4.1.x to this release, please follow the normal JIRA Upgrade Guide.

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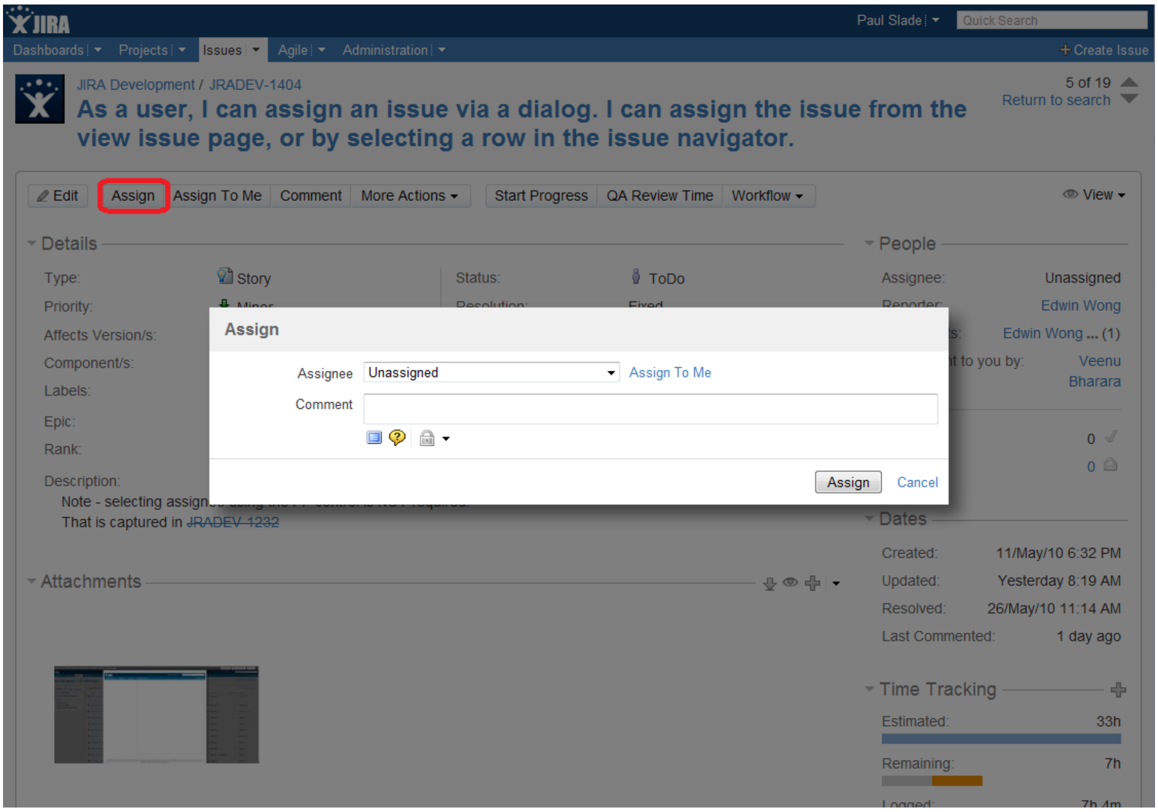

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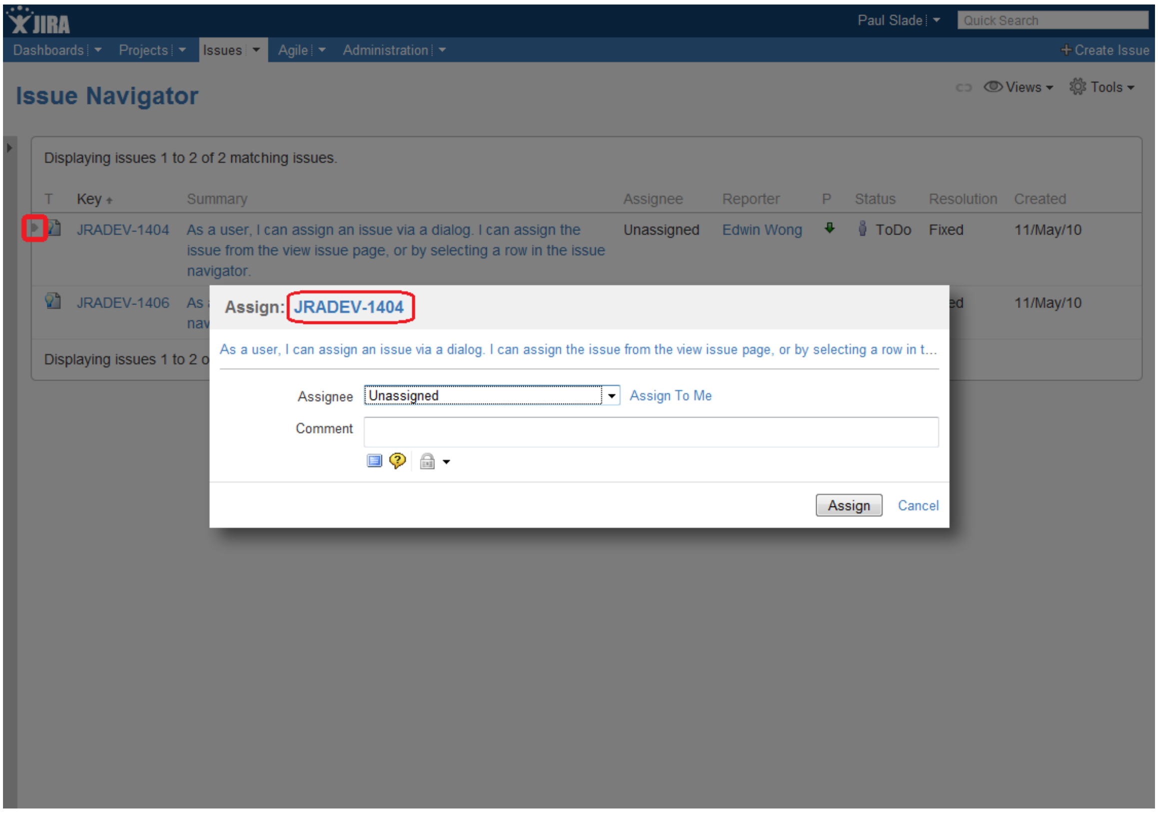

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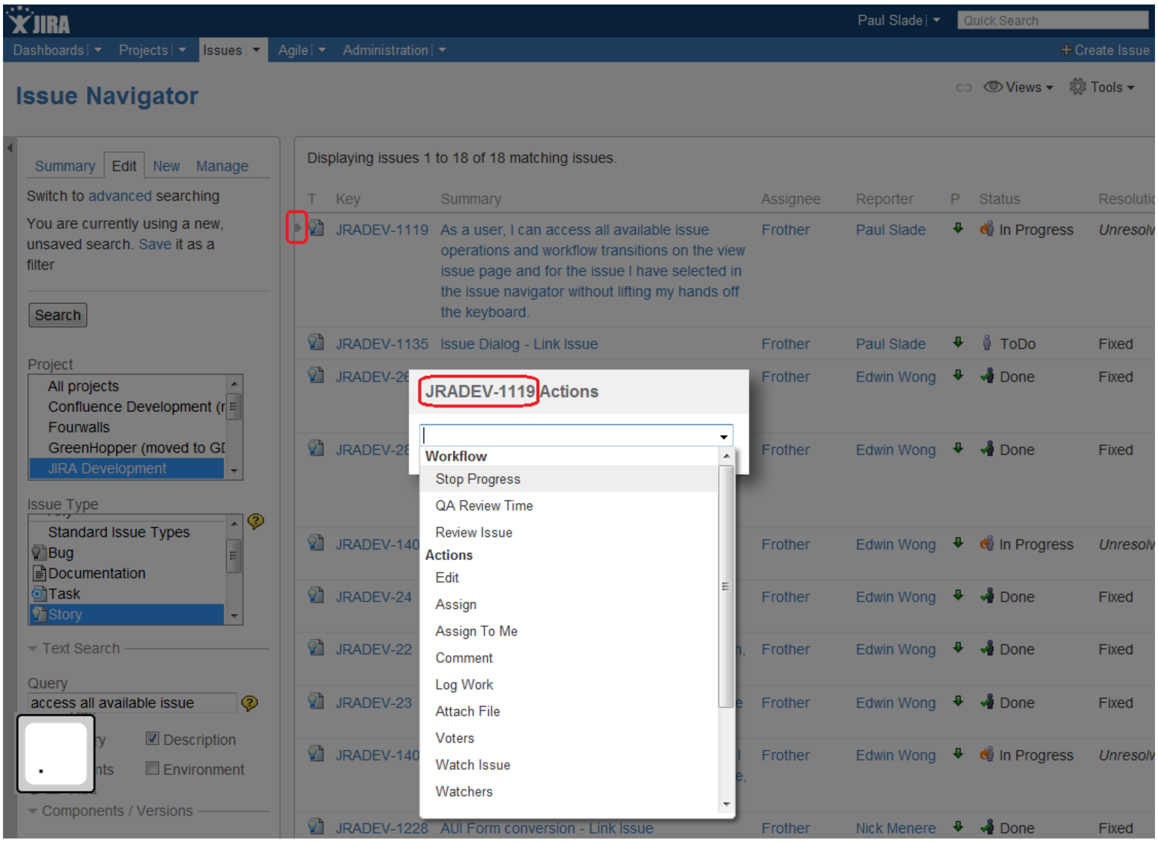

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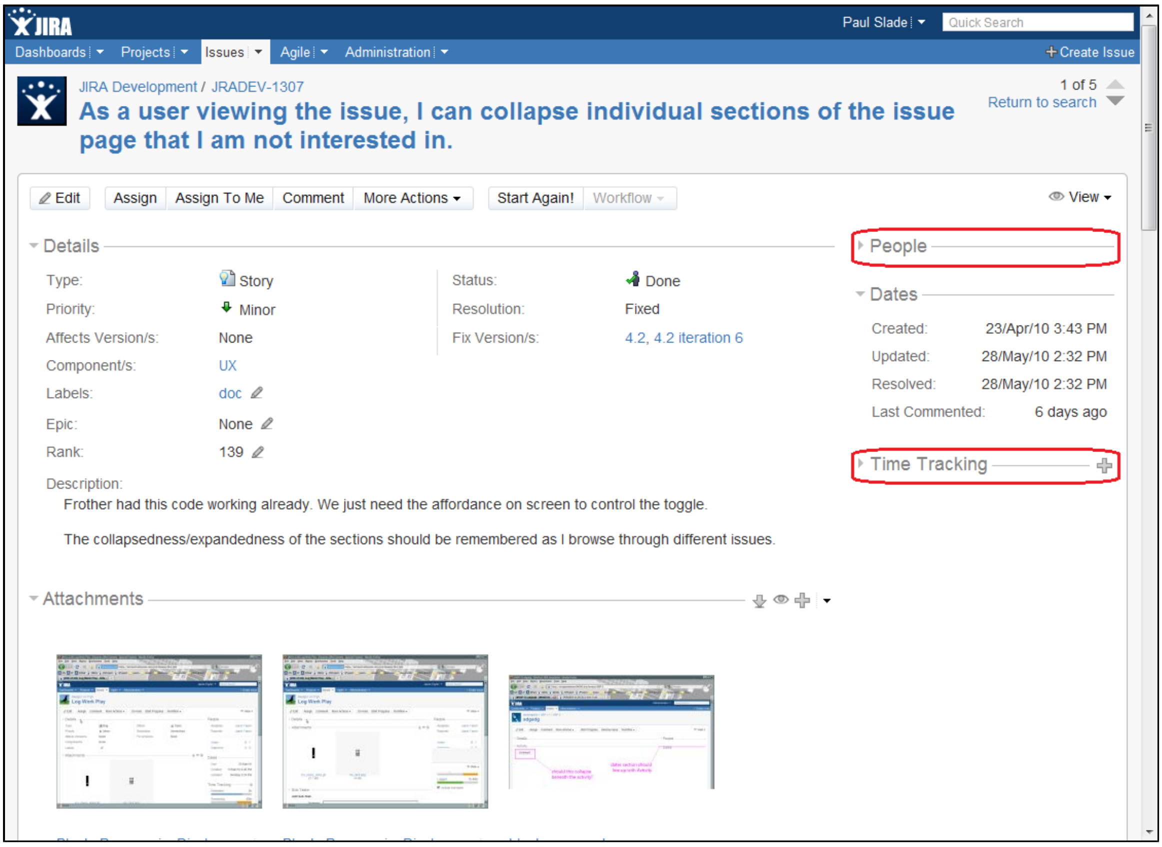
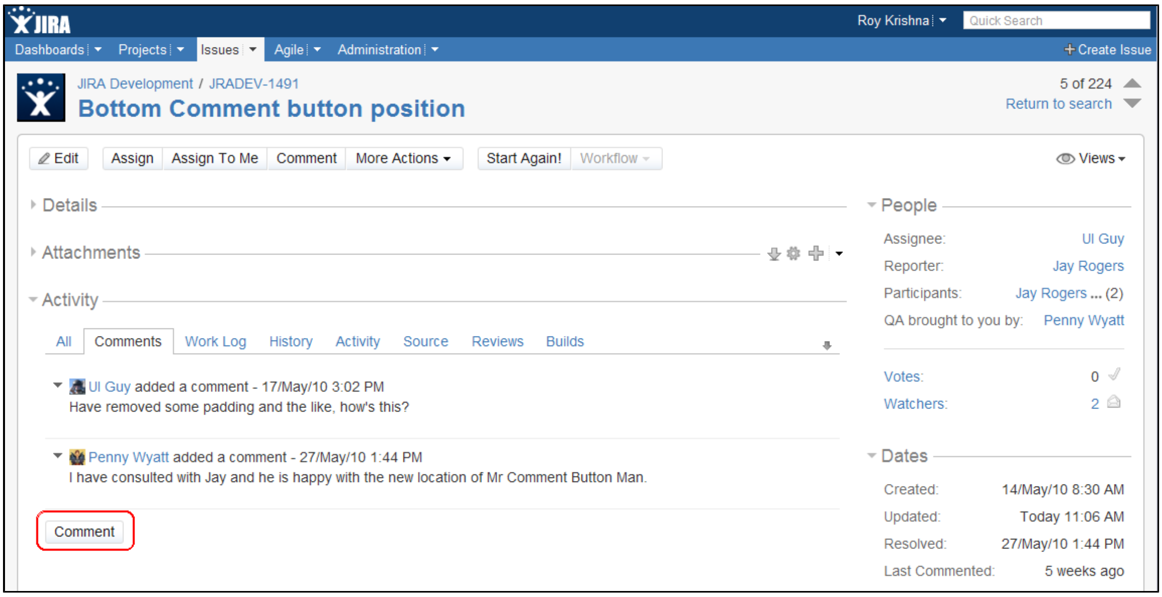
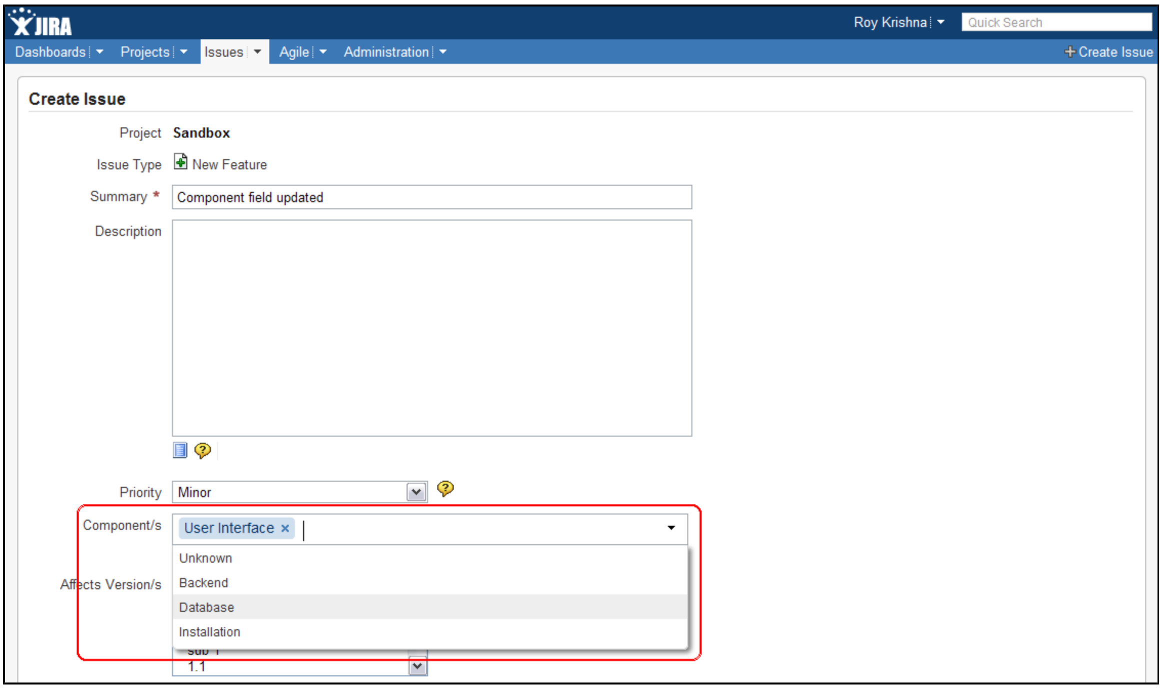


After much feedback on the 4.1 updates to the 'View Issue' screen, you can now also add a comment at the bottom of the commenting section.



We've also managed to update the look and feel of the component list in Edit mode.



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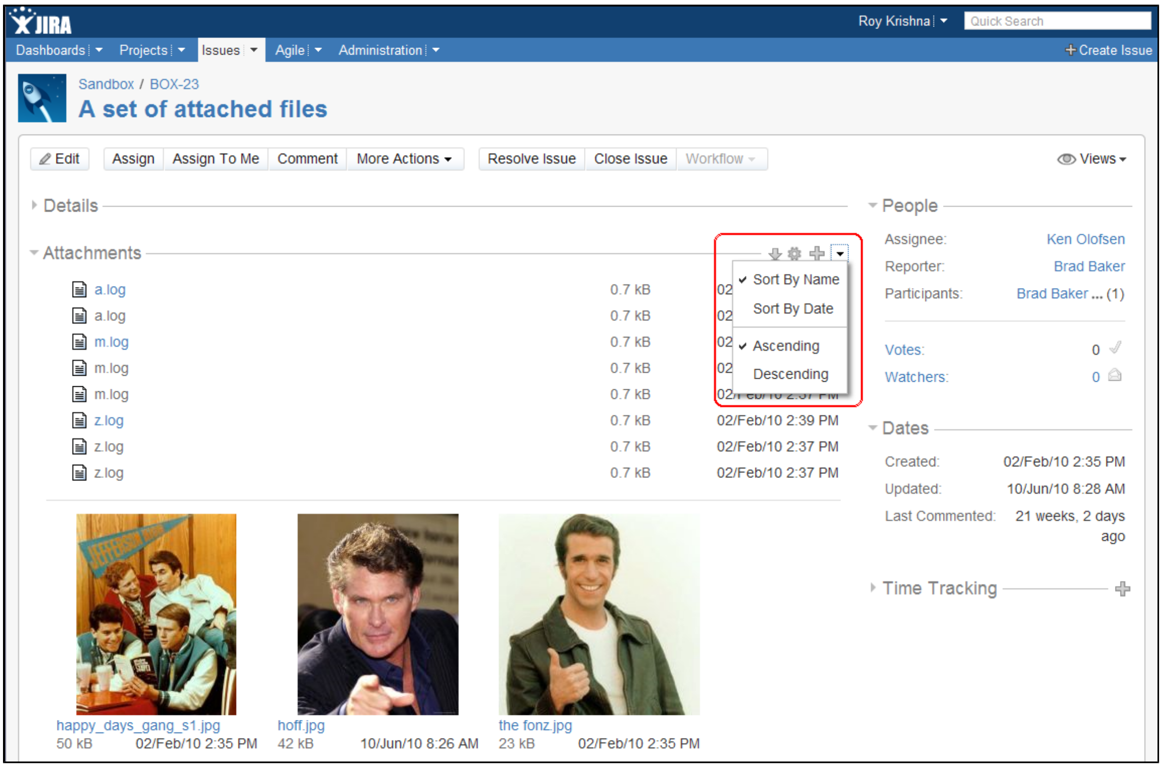

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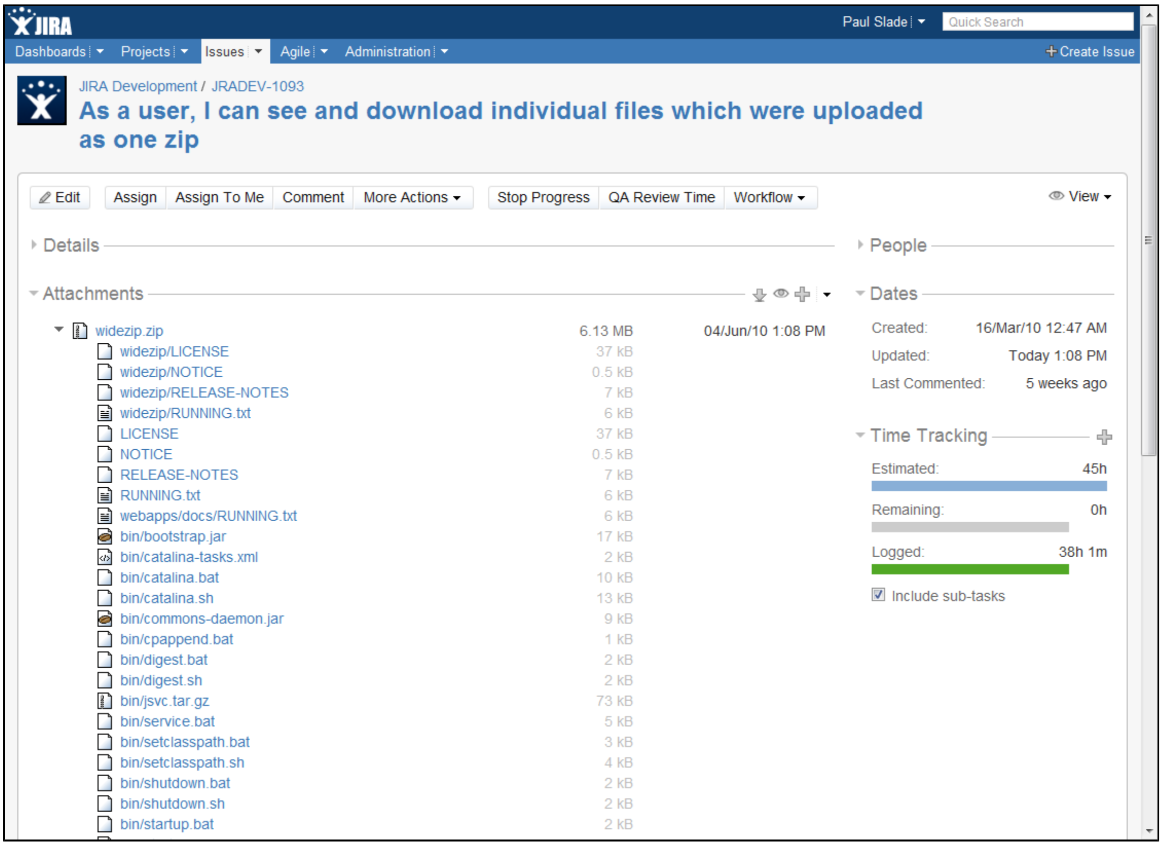

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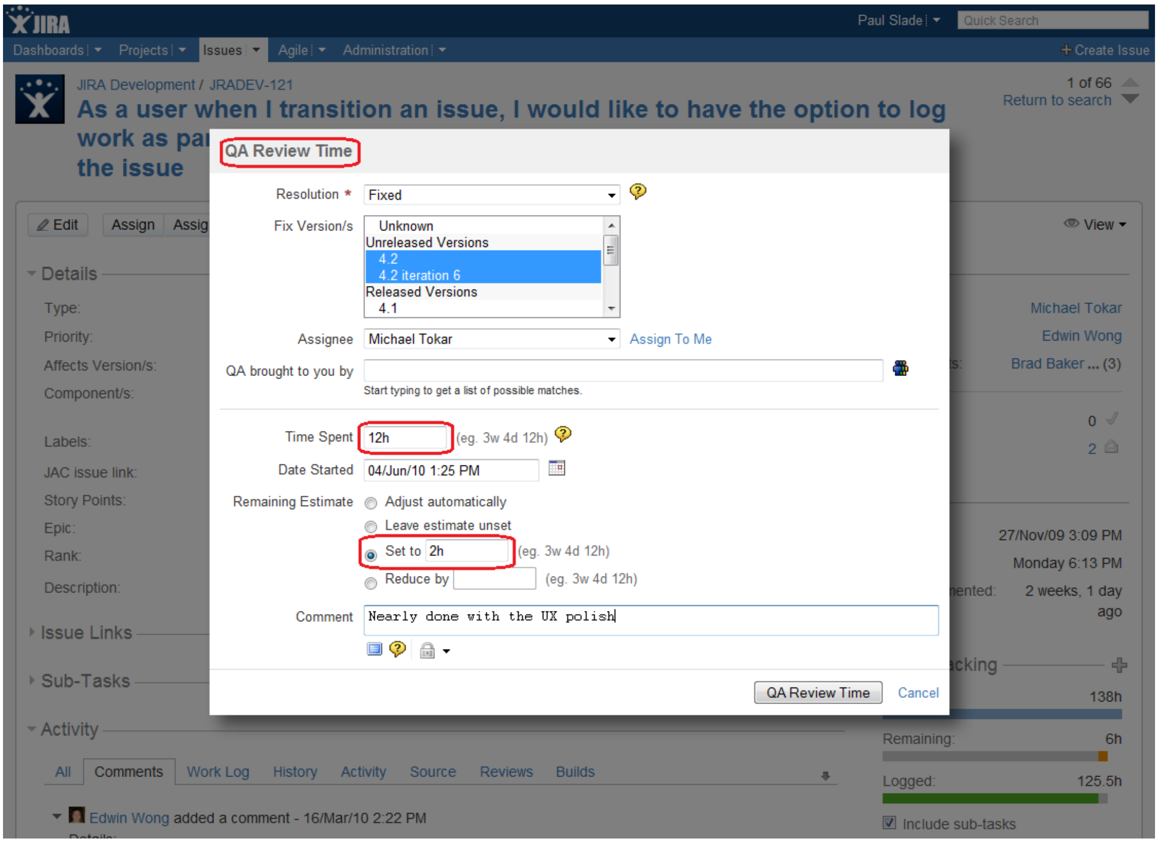

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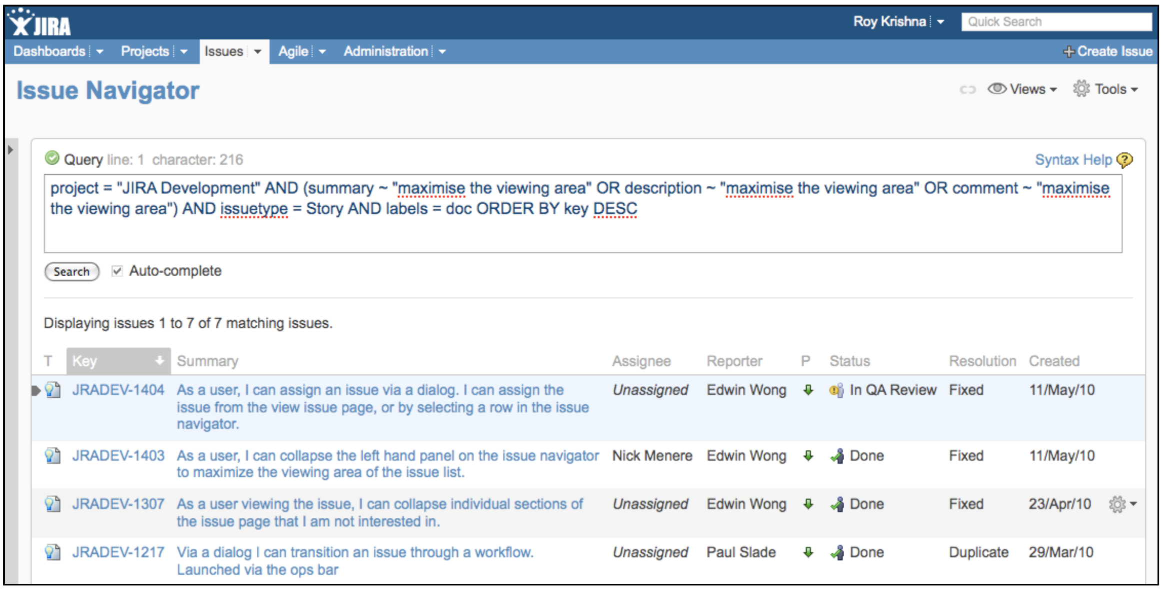

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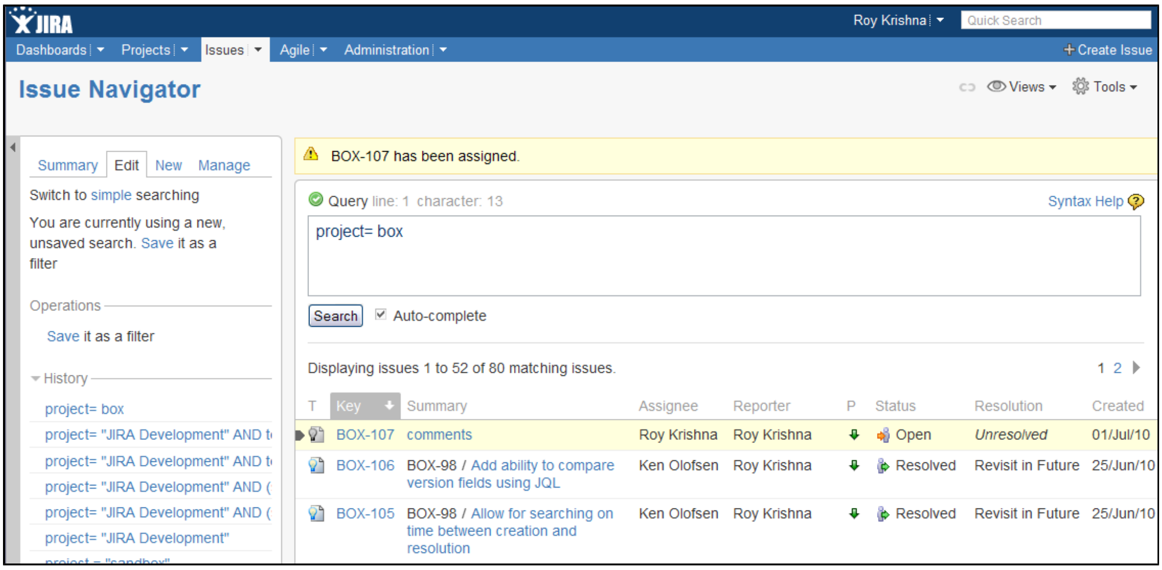

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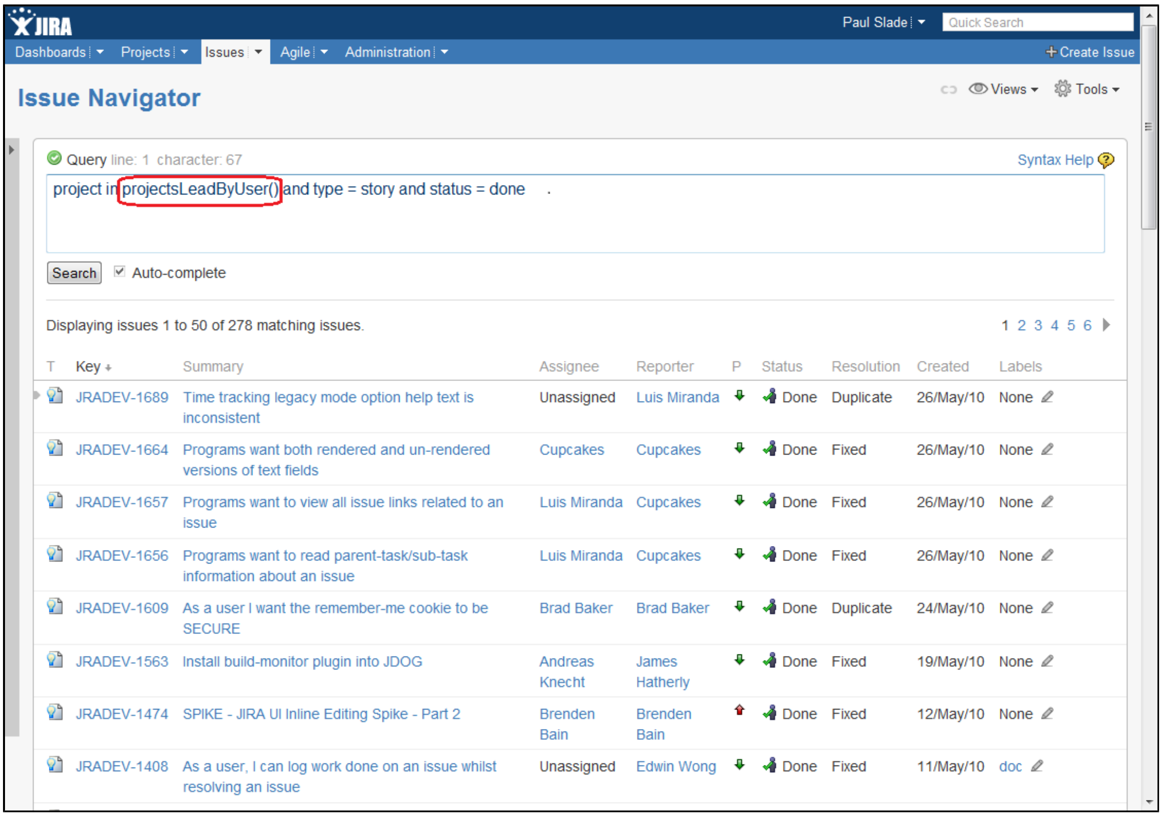

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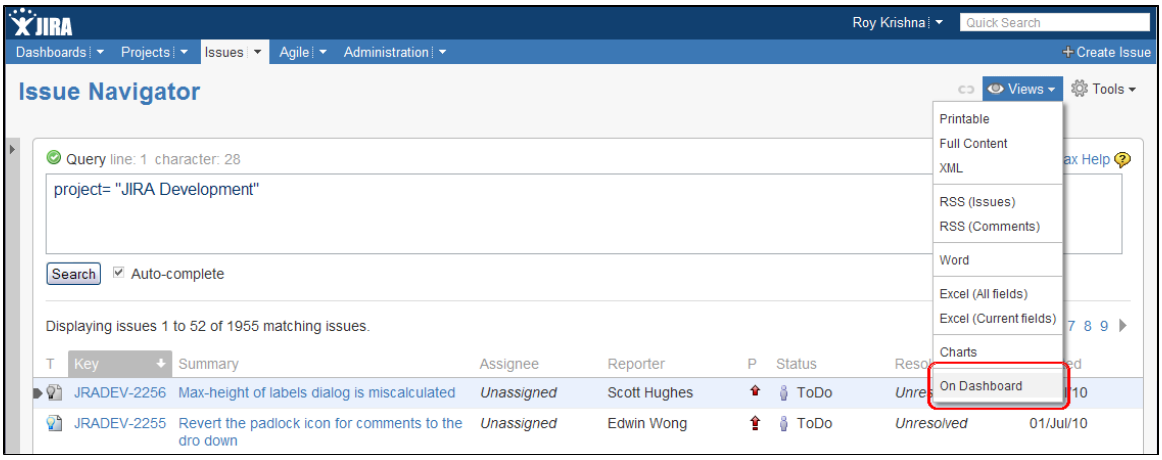

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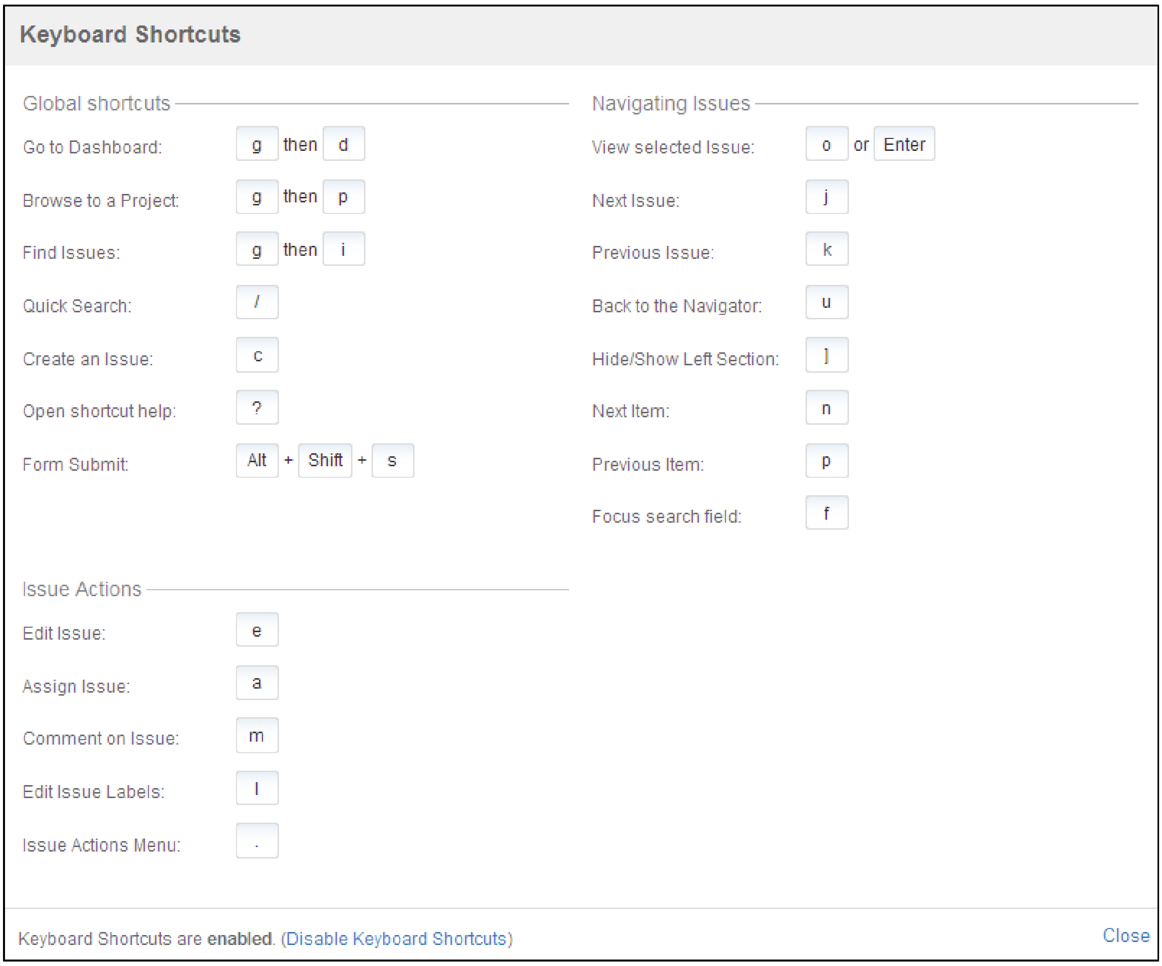

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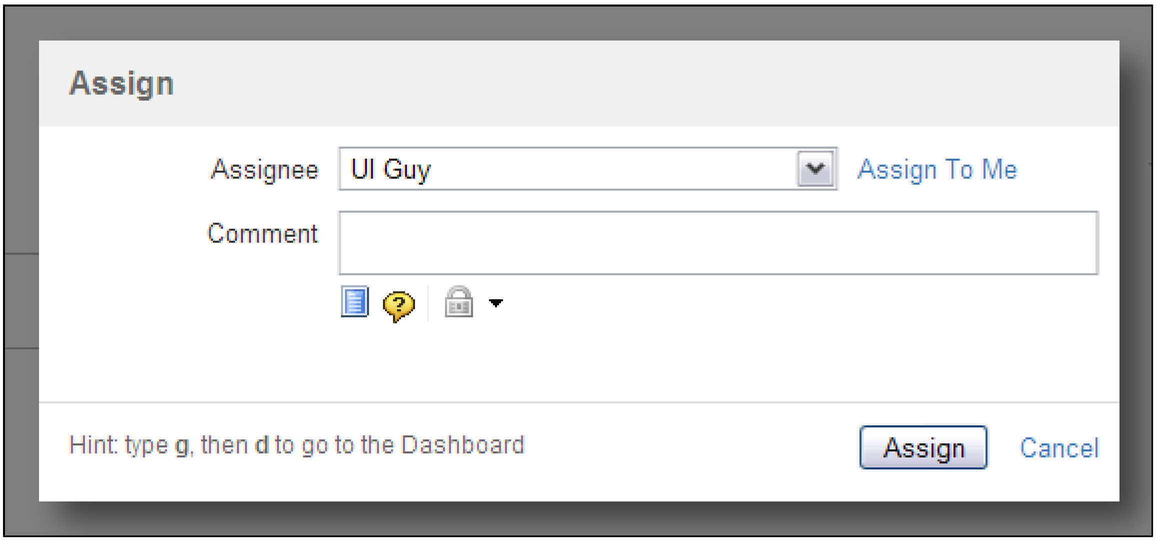

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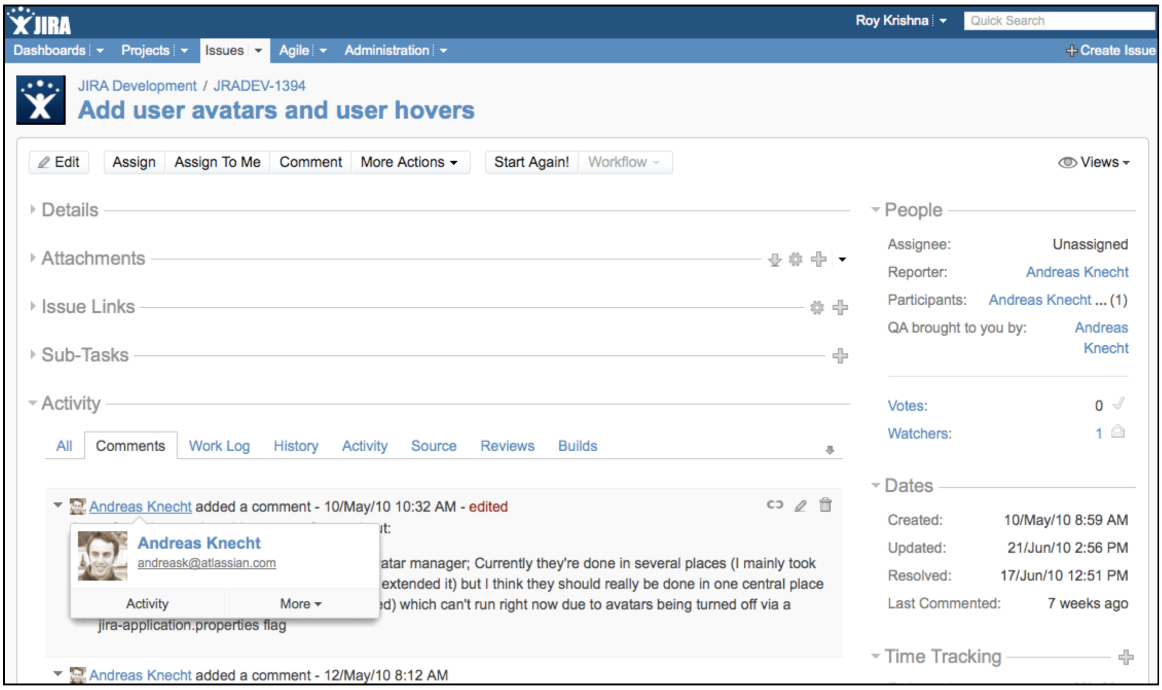

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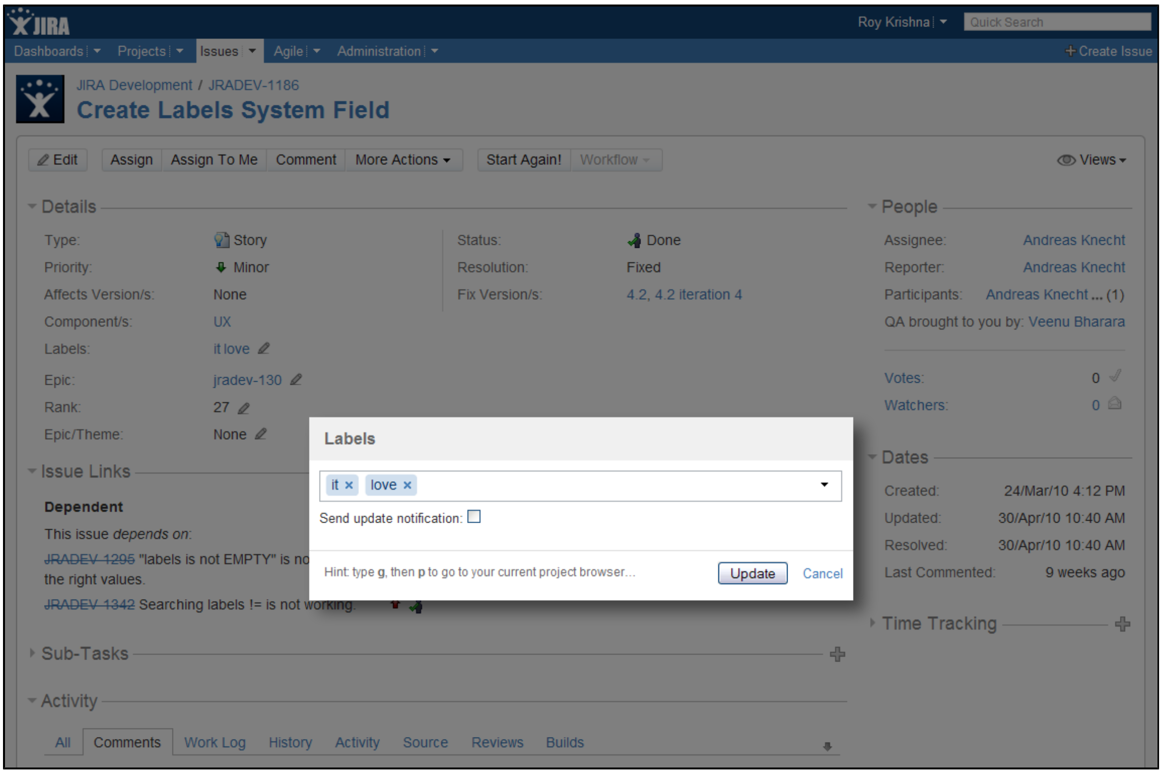

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Other Enhancements and Fixes

Click here for the full list of issues resolved in 4.2.

^Top

JIRA 4.2 EAP 1 Release Notes

8 June 2010

JIRA 4.2 EAP 1 (a.k.a 4.2 milestone 6) is a public development release leading up to **JIRA 4.2**. For all production use and testing of JIRA, please use the latest official release.

An **Early Access Preview (EAP) release** is a public development release leading up to the official release of a JIRA version. Development releases are a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release.

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> **GreenHopper Support**
> Please be aware that GreenHopper 5.0 is not compatible with the JIRA 4.2 EAP releases.

The Atlassian team is proud to bring you the JIRA 4.2 EAP 1 release. We still have a little more work to do, but overall, this is how 4.2 will look when it gets rolled out later this year. And we want your feedback.

Time-tracking is now much more flexible: you can edit the Original Estimate, and set the Remaining Estimate to zero on resolving an issue. You can also log work via workflow 'transition' screens — which are now provided as in-place dialogs rather than separate screens. For the mouse-averse, the new 'dot dialog' provides access to all menu options via the keyboard. The 'Labels' plugin is now a permanent part of JIRA, simplifying system management for GreenHopper users — and everyone else who likes to label their JIRA issues. Dashboard Publish/Subscribe with Confluence is also included.

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Thank you for your interest in JIRA 4.2 EAP 1
Download EAP

> **Upgrading to JIRA 4.2 EAP 1**
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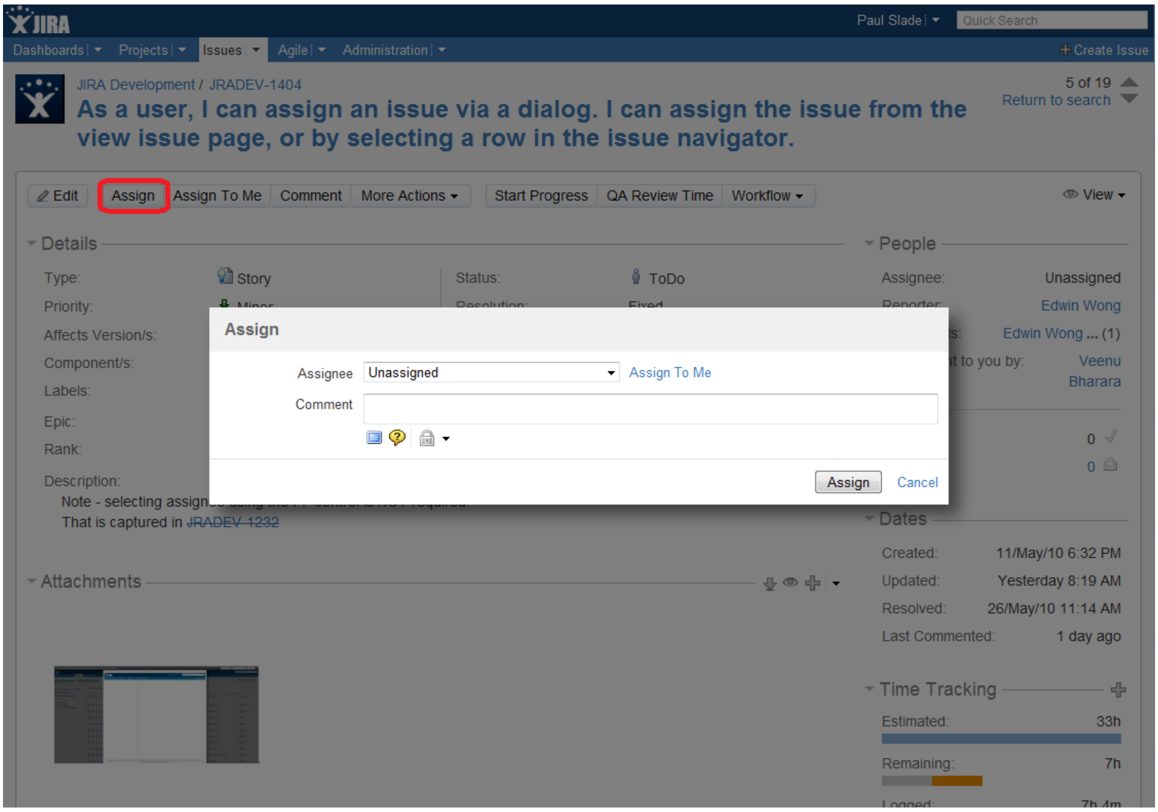

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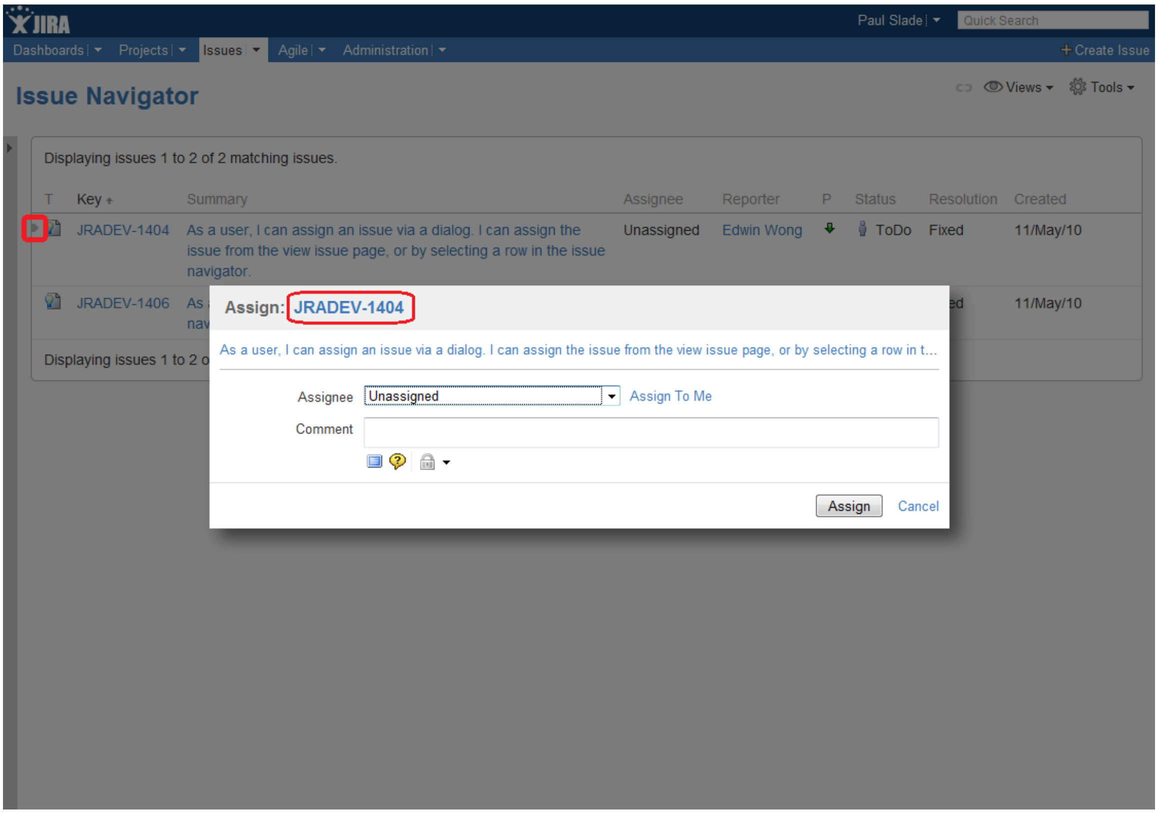

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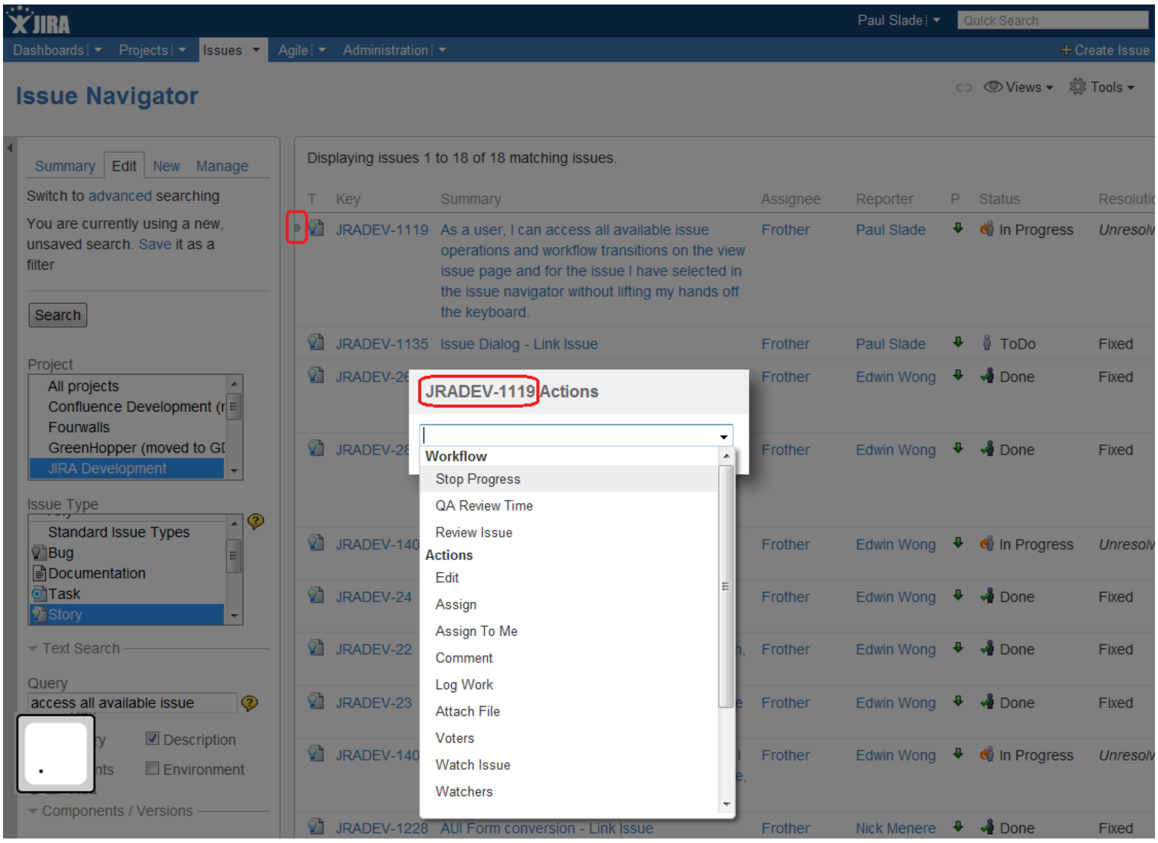

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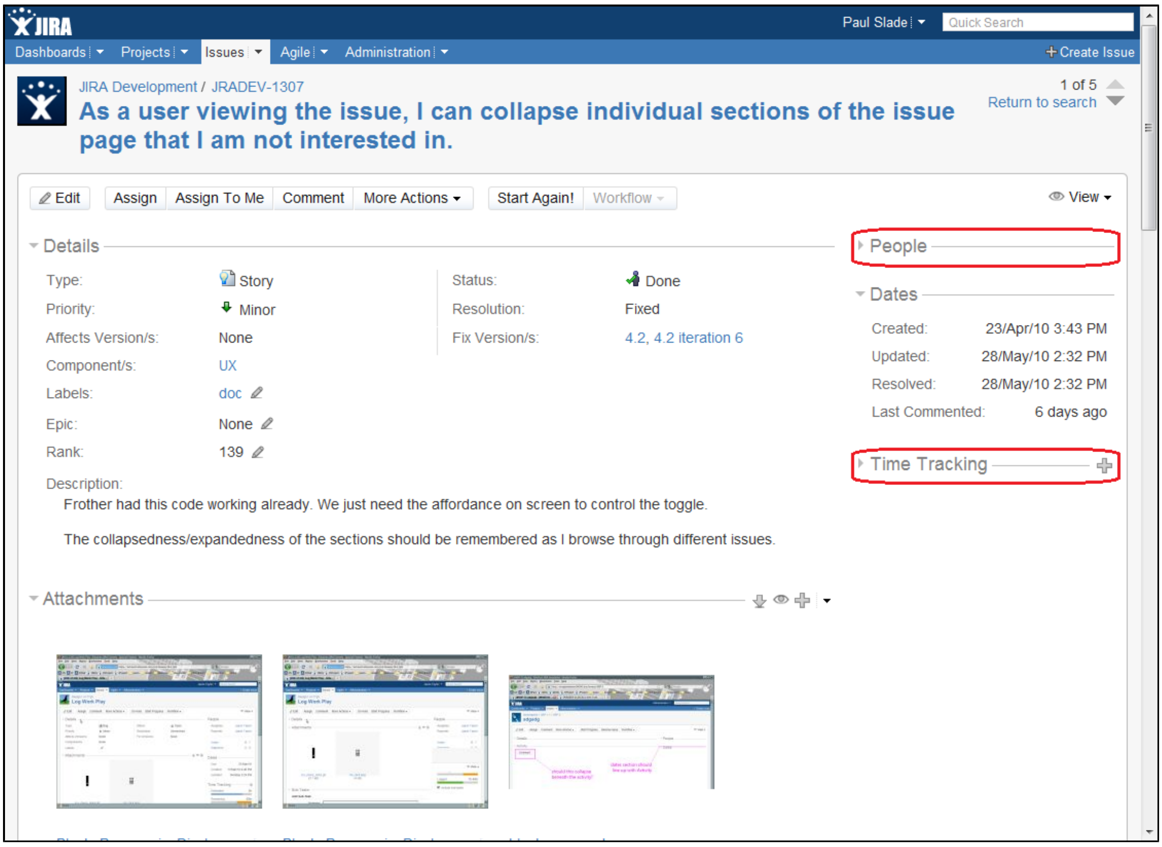
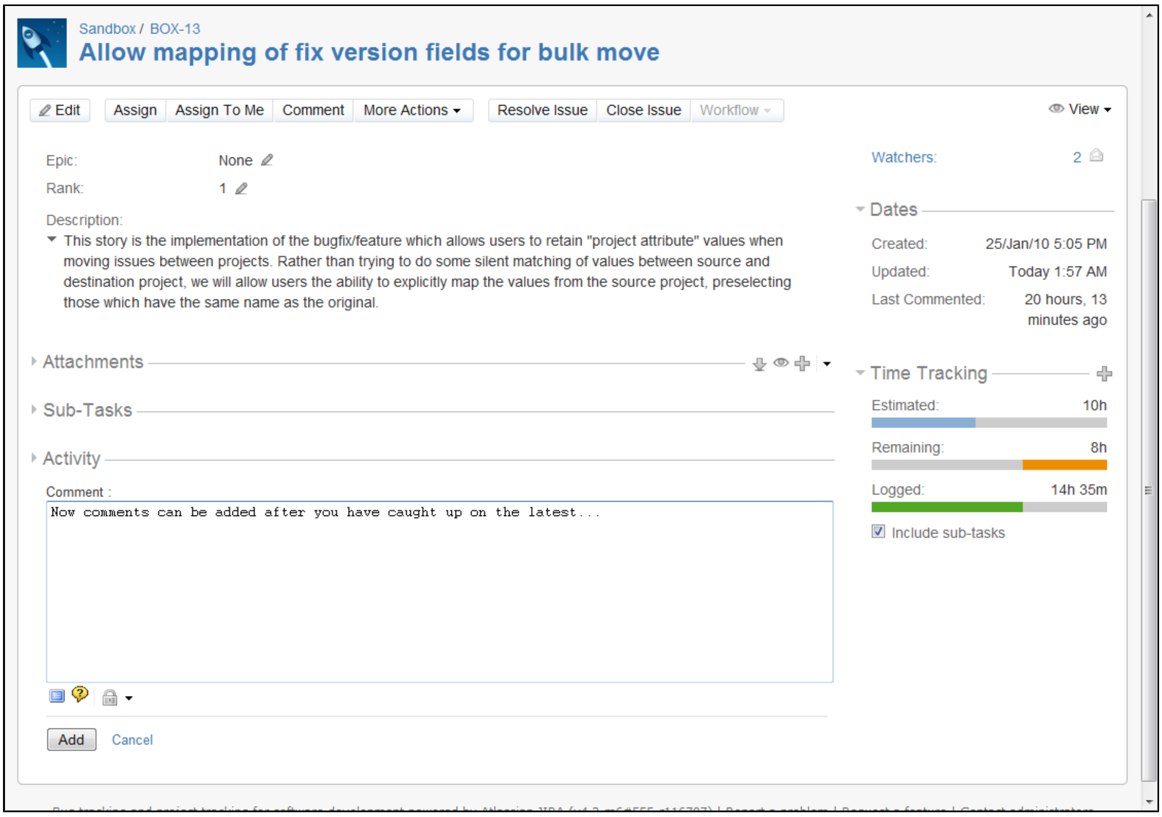
Individual blocks can now be collapsed to streamline your issue view. The view state (i.e. which blocks are expanded/collapsed) will also be remembered across issues.



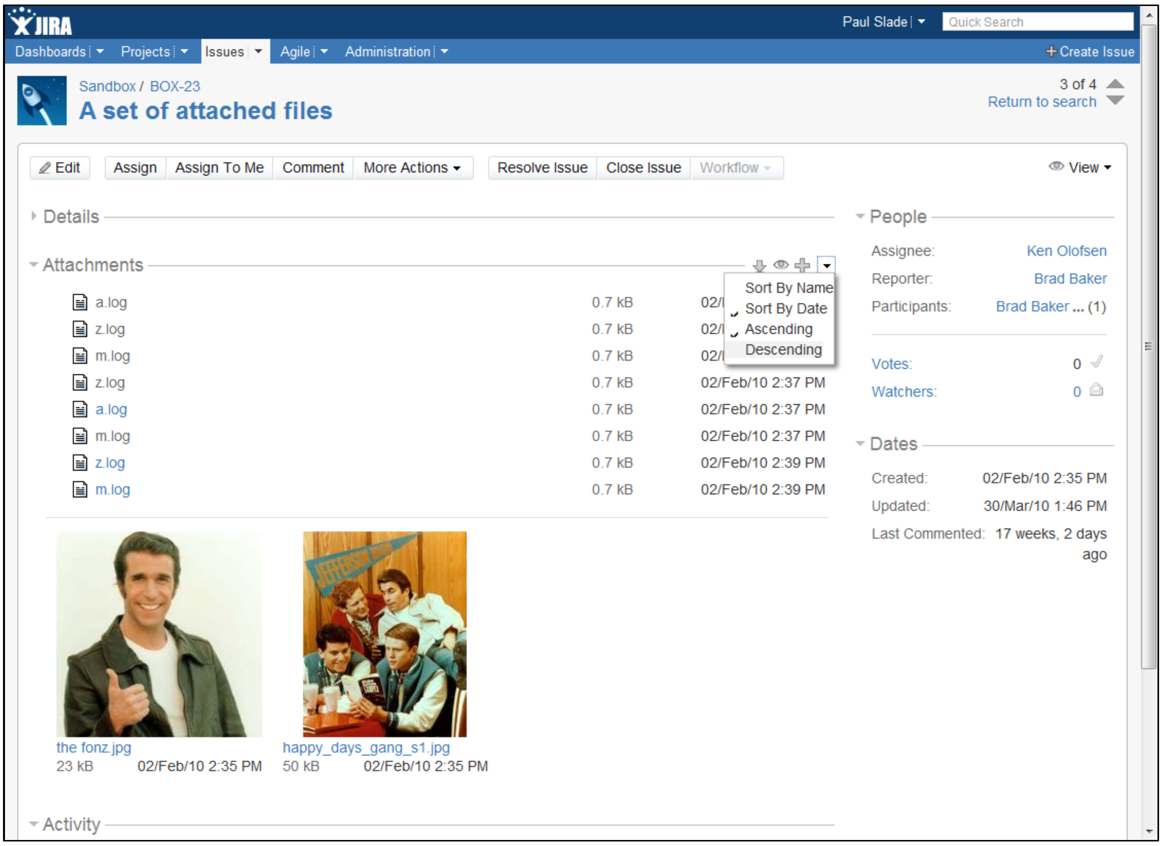
After much feedback on the 4.1 updates to the 'View Issue' screen, you can now also add a comment at the bottom of the commenting section.



5

Attachment Sorting by Date or Name

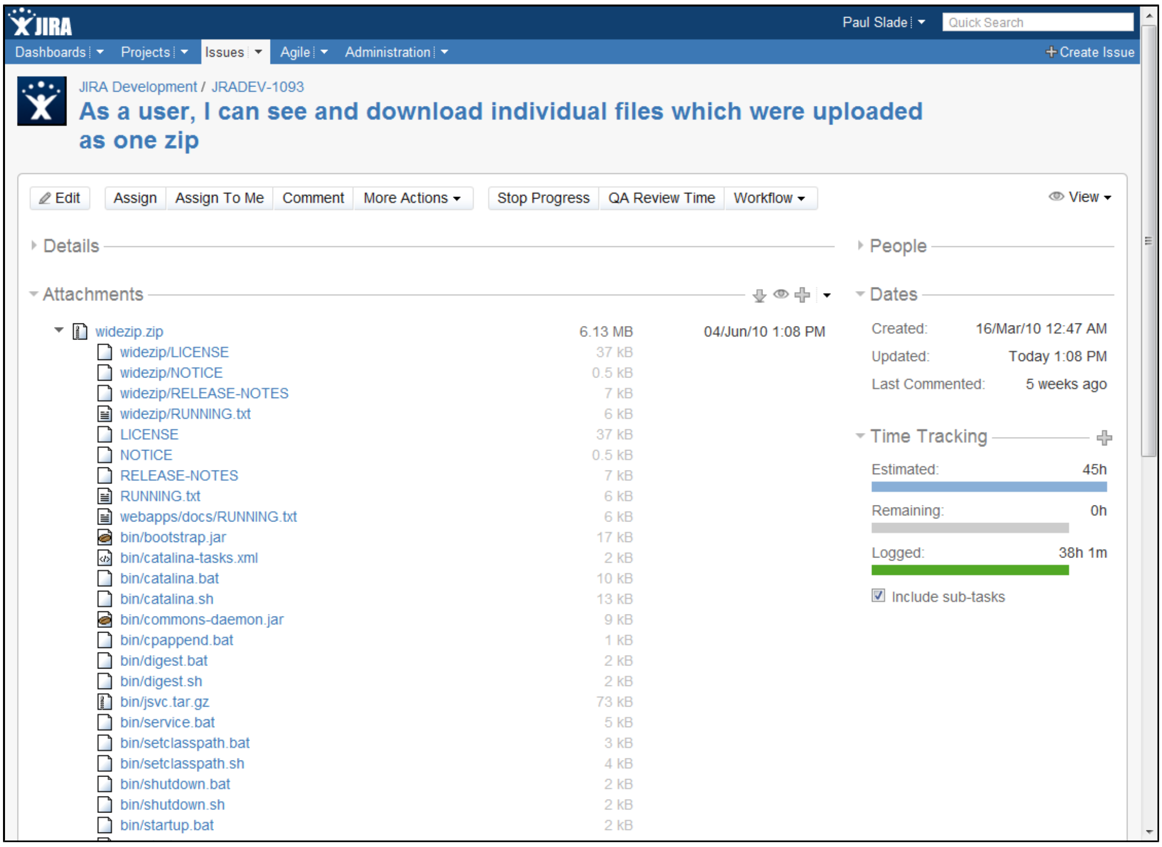
Attachments can now be sorted by date or by name, in ascending or descending order.



6

Viewable Files in Zipped Attachments

You can expand an attached zip file to see its contents. The first 30 files will be shown for larger zip files.



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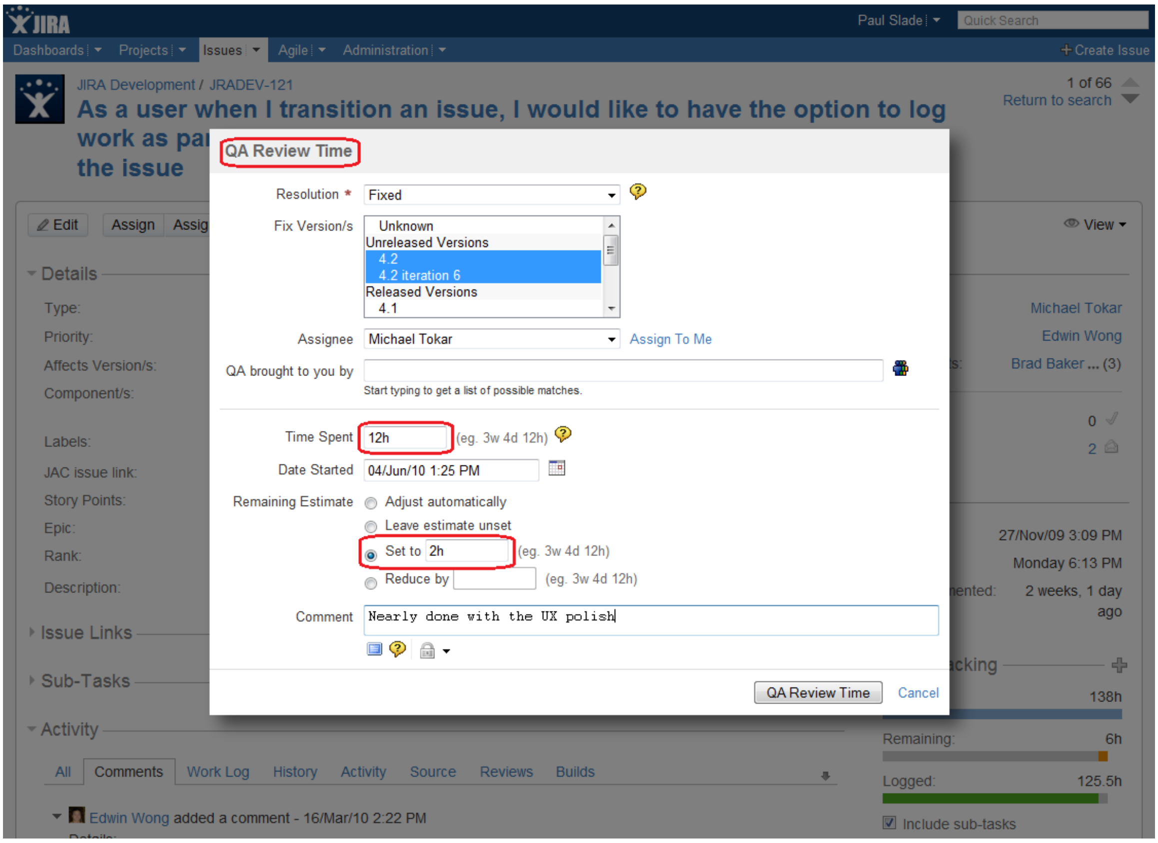
'Log Work' Improvements

You can now log work when you resolve an issue, saving you a step. You can also set the remaining time to 0 upon resolving an issue.

You also now have the ability to edit the Original Estimate, even if work has been logged on an issue (not shown here).

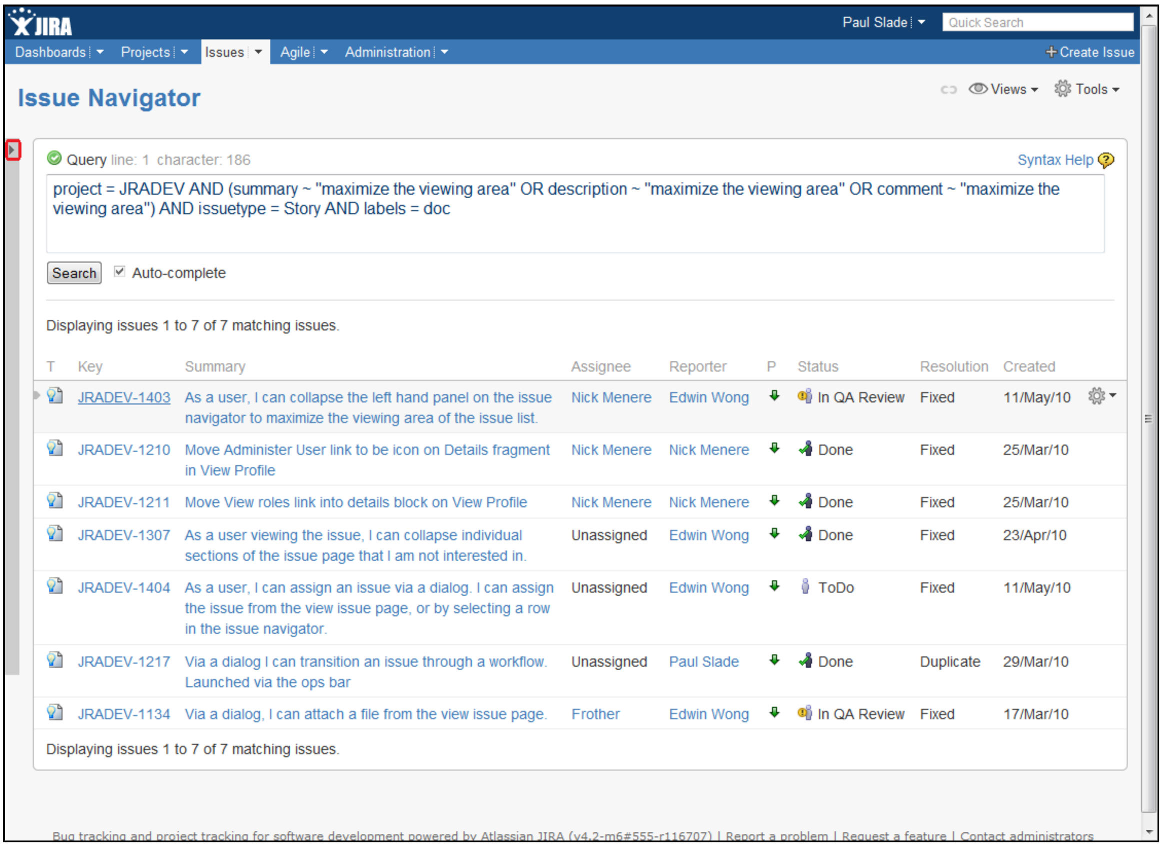


^Top

8

Improvements to the Issue Navigator

The Issue Navigator has been updated to match the look and feel of an issue. We've also added a collapsible search form to increase the size of the results area.



^Top

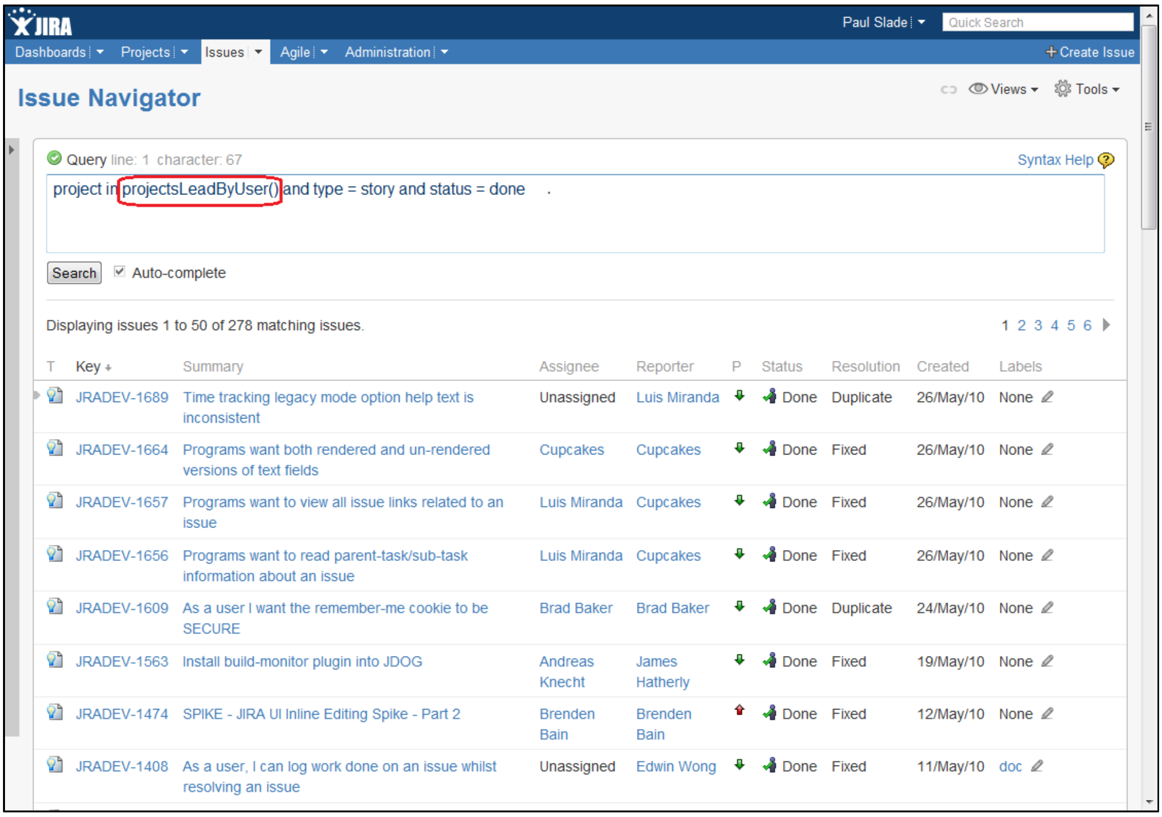
Separate Searching in Multiple Tabs

This is for those of us who are addicted to having lots of browser tabs open at once. You can now have a different JIRA search in each tab!

^Top

New JQL Functions

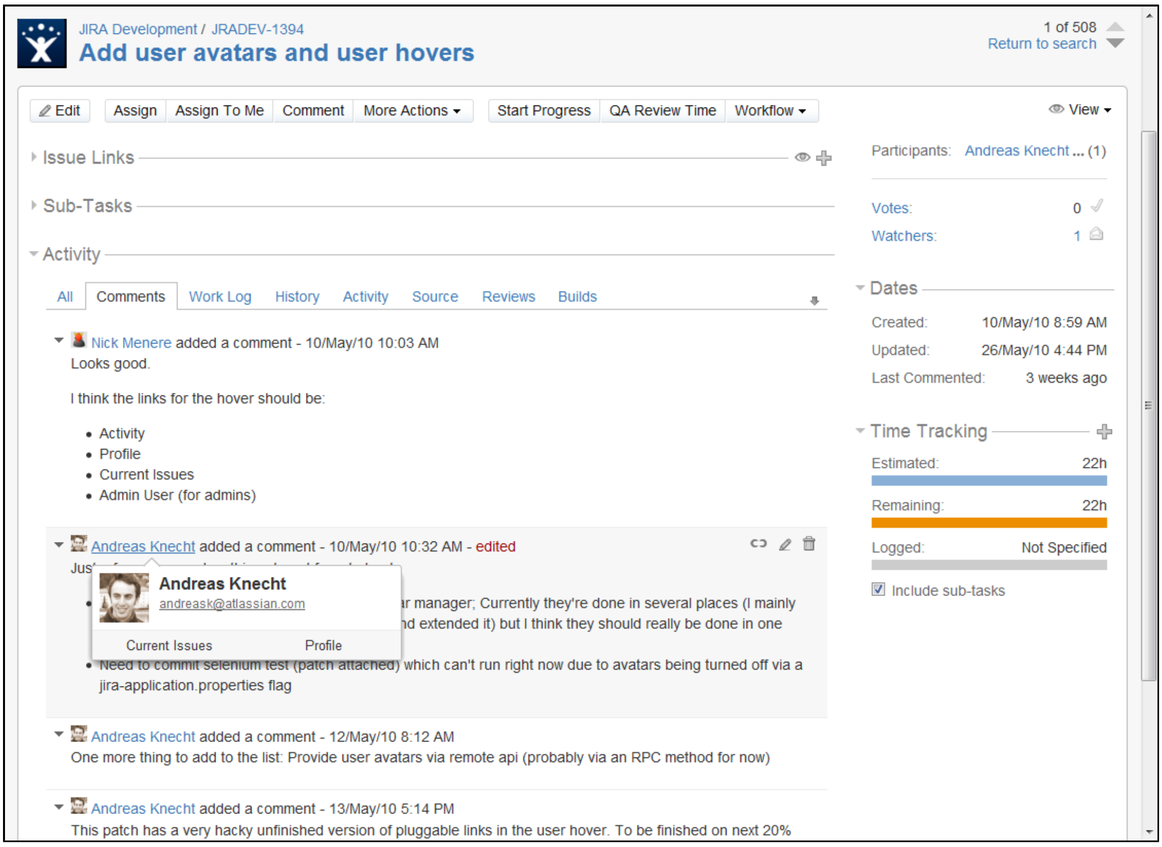
Additional JQL functions for projectLeadBy and componentsLeadBy — useful for finding all issues where a particular user is the lead of a component, or a project.



^Top

User Avatars and User Hover

JIRA users can now add an avatar to their profile. You can then mouse-hover over a user's name to show information about that user — this is available when viewing an issue, using the Issue Navigator, browsing a project, viewing activity, viewing a user profile and performing some administration tasks.



^Top

11

'Filter' Gadget creation via the Issue Navigator

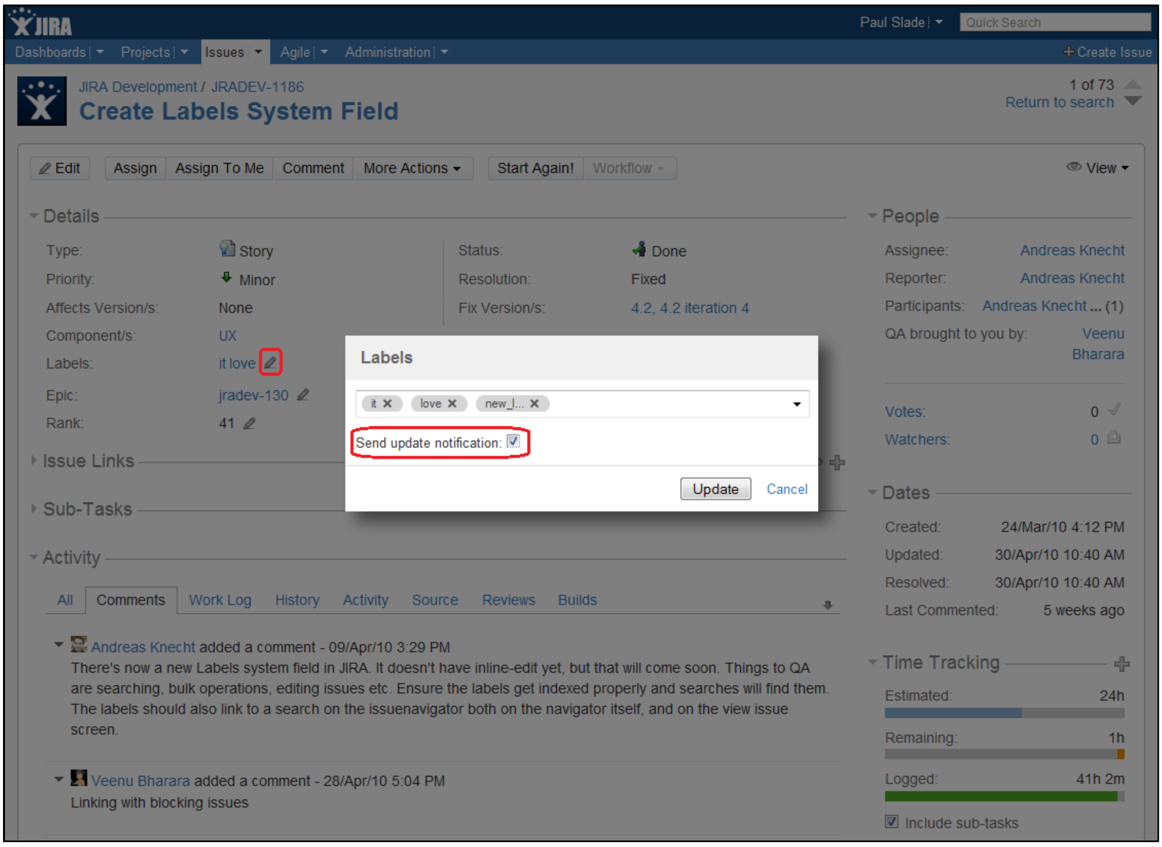
When viewing search results, you can quickly add a 'Filter Results' gadget to your dashboard via the 'View' menu.

^Top

11

Labels Now Included

The functionality from the Labels plugin is now included in JIRA out-of-the-box. The labels dialog has a great new UI and issue notifications are now optional when updating labels for an issue.



^Top

12

Other Enhancements and Fixes

The top 50 most popular issues resolved in JIRA 4.2 are listed below. Click here for the full list.

^Top

JIRA 3.11 EAP Release Notes

An **Early Access Preview (EAP) release** is a public development release leading up to the official release of a JIRA version. Development releases are a snapshot of our work in progress, primarily focused on allowing JIRA users to see the new features in advance and provide us with some useful feedback. It also gives plugin developers an opportunity to test and fix their plugins in advance of an official release.

Do not use in production
EAP releases should not be used in production environments as they are not officially supported.

Please also take note of the following information:

- **EAP Releases are Not Safe** — EAP releases are snapshots of the ongoing JIRA development process. As such:
  - While we try to keep these releases stable, they have not undergone the same degree of testing as a full release.
  - Features in development releases may be incomplete, or may change or be removed before the next full release.
- **No Upgrade Path** — Because EAP releases represent work in progress, we **can not** provide a supported upgrade path between EAP releases, or from any EAP to the eventual final release. Thus, any data you store in a JIRA EAP release may not be able to be migrated to a future JIRA release.

JIRA 3.11 EAP is a public development release leading up to JIRA 3.11.

Who should download this release?

This EAP release is being made available specifically for **JIRA plugin developers** to test their existing plugins against indexing changes in JIRA 3.11. This affects all plugins that maintain their own indexes or interact with JIRA's index (e.g. via a custom field with a custom searcher that the plugin implements).

For all production use and testing of JIRA, please use the latest official release.

Plugins that depend on indexing will have to be updated to remove the use of any methods that were deprecated in Lucene 1.9.1. These plugins will have to be re-compiled against Lucene 2.2.0 and re-released for JIRA 3.11.

What's new?

This EAP release includes the following features:

- Aggregate Time Tracking information across sub-tasks
- Lucene upgrade to v2.2.0

JIRA 3.11 aims to upgrade Lucene to version 2.2.0. A number of deprecated methods that JIRA and JIRA plugins relied on where removed from this version of Lucene. Aside from the API changes, there were also changes to how certain fields are stored in the index themselves. Luckily Lucene 2.2.0 is backwards compatible and is able to read indexes created by earlier versions of Lucene (indexes will be converted to the Lucene 2.2.0 format as soon as documents are added). Once an index has been upgraded to Lucene 2.2.0 any previous version of Lucene will not be able to read this index any longer.

One change that may require you to re-index are how dates are stored in the index. For example, DateFields have been deprecated in favour of DateTools, which stores dates in a human readable form. If you convert your plugins to store dates using DateTools, you will need to advise all users that they will need to perform a re-index (currently the only way to do this for plugins is to delete the plugin's index files).

What should I do?

If you have developed custom plugins that use Lucene, either publicly in the JIRA Plugin Library, or privately for you company's internal use, it is critical that you test those plugins against the JIRA 3.11 EAP. Because of the upgrade Lucene 2.2 and the large number of deprecations, it is likely that you will need to make changes.

You should make any necessary changes to the plugin, and be prepared to release thhose fixes in conjunction with JIRA 3.11, so that users will have a smooth upgrade experience.

If you have any trouble with the EAP or the upgrade process, please contact developer-support@atlassian.com for assistance.

The EAP is available for download here.

Security Advisories

As a public-facing web application, JIRA's application-level security is important. This document contains links to version-specific security advisories and related documents for the JIRA application.

> This document is intended to provide information to system administrators about the security of the JIRA application. It does not address JIRA's internal security model — user management and permissions — except as it relates to the overall application security.

On this page:

- Finding and Reporting a Security Vulnerability
- Publication of JIRA Security Advisories
- Severity Levels
- Our Patch Policy
- Security Advisories

Finding and Reporting a Security Vulnerability

Atlassian's approach to reporting security vulnerabilities is detailed in How to Report a Security Issue.

Publication of JIRA Security Advisories

Atlassian's approach to releasing security advisories is detailed in Security Advisory Publishing Policy.

> **Latest security advisory:**
>
> - JIRA Security Advisory 2011-02-21

Severity Levels

Atlassian's approach to categorising security issues is detailed in Severity Levels for Security Issues.

Our Patch Policy

Atlassian's approach to releasing patches for security issues is detailed in Security Patch Policy.

Security Advisories

- JIRA Security Advisory 2011-02-21
- JIRA Security Advisory 2010-12-06
- JIRA Security Advisory 2010-06-18
- JIRA Security Advisory 2010-04-16
- JIRA Security Advisory 2009-04-02
- JIRA Security Advisory 2008-12-09
- JIRA Security Advisory 2008-10-29
- JIRA Security Advisory 2008-08-26
- JIRA Security Advisory 2008-02-21
- JIRA Security Advisory 2007-12-24

JIRA Security Advisory 2011-02-21

This advisory announces a security vulnerability that has been found in all versions of JIRA prior to 4.2.2 and fixed in 4.2.2 and later versions. Enterprise Hosted customers should request an upgrade by filing a ticket at http://support.atlassian.com. JIRA Studio is not vulnerable to any of the issues described in this advisory.

Atlassian is committed to improving product security. The vulnerability listed in this advisory has been discovered by Atlassian, unless noted otherwise. The reporter may also have requested that we do not credit them.

If you have questions or concerns regarding this advisory, please raise a support request at http://support.atlassian.com/.

In this advisory:

- Parameter-Based Redirection Vulnerability
  - Severity
  - Risk Assessment
  - Vulnerability
  - Risk Mitigation
  - Fix
  - Patches

Parameter-Based Redirection Vulnerability

Severity

Atlassian rates this vulnerability as **high**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low. This vulnerability is **not** critical.

This is an independent assessment and you should evaluate its applicability to your own IT environment.

Risk Assessment

Parameter-based redirection vulnerabilities allow an attacker to craft a JIRA URL in such a way that a user clicking on this URL will be redirected to a different web site. This can be used for phishing.

You can read more about link manipulation attacks at Wikipedia, and about phishing at Fraud.org and other places on the web.

Vulnerability

Some actions in JIRA redirect users to a new page after the action has been completed. It was possible to hand-craft an URL that would redirect to a site outside the current instance of JIRA. Starting with JIRA 4.2.2 all such redirections are limited to pages inside the current instance of JIRA.

All versions of JIRA prior to 4.2.2 are affected.

Risk Mitigation

We recommend upgrading your JIRA installation to fix this vulnerability. Please see the 'Fix' section below.

Fix

These issues have been fixed in JIRA 4.2.2 and later.

Patches

We have created a patch for the latest maintenance release 4.1.2 of JIRA for this vulnerability.

Please note that we have released a number of advisories about JIRA recently. We recommend that you review them and upgrade to the most recent release of the product or apply external security controls if you cannot. Most of the disclosed vulnerabilities are not critical and often present less risk when used in a corporate environment with no access from the Internet.

We usually provide patches only for vulnerabilities of critical severity, as an interim solution until you can upgrade. You should not expect that you can continue patching your system instead of upgrading. Our patches are often non-cumulative – we do not recommend that you apply multiple patches from different advisories on top of each other, but strongly recommend to upgrade to the most recent version regularly.

We recommend patching only when you can neither upgrade nor apply external security controls.

Supported JIRA Version	Issue Tracking	File Name	Downloadable Patch
4.1.2	JRA-23842	patch-JRA-23842-4.1.2-a.zip	Download

Instructions on how to apply the patch are included in the zip file

JIRA Security Advisory 2010-12-06

In this advisory:

- XSS Vulnerabilities in URL Query Strings
- XSRF Vulnerabilities
- Vulnerability in Secure Tokens
- Vulnerability in Component Data

XSS Vulnerabilities in URL Query Strings

Severity

Atlassian rates these vulnerabilities as **high**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a number of cross-site scripting (XSS) vulnerabilities which may affect JIRA instances. These vulnerabilities have security implications and are especially important for anyone running publicly accessible instances of JIRA. XSS vulnerabilities allow an attacker to embed their own JavaScript into a JIRA page. You can read more about XSS attacks at cgisecurity, the Web Application Security Consortium and other places on the web.

Vulnerability

Some values from JIRA URLs were being injected directly into JavaScript, potentially enabling an attacker to add scripts to another user's response.

All versions of JIRA prior to 4.2.1 are affected.

Risk Mitigation

We strongly recommend upgrading your JIRA installation to fix these vulnerabilities. Please see the 'Fix' section below.

Fix

These issues have been fixed in JIRA 4.2.1 and later, and are available as a patch for JIRA 3.13.5, 4.0.2 and 4.1.2 (please see JRA-22493).

XSRF Vulnerabilities

Severity

Atlassian rates this vulnerability as **high**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed several cross-site request forgery (XSRF/CSRF) vulnerabilities in JIRA. These vulnerabilities have security implications and are especially important for anyone running publicly accessible instances of JIRA.

- An attacker might take advantage of the vulnerability to fraudulently act on behalf of a legitimate user.

You can read more about XSRF/CSRF attacks at cgisecurity, wikipedia and other places on the web.

Vulnerability

Some JIRA administration screens did not have XSRF protection. A targetted attack on a vulnerable system could result in an attacker gaining access to user credentials, potentially giving them access to the JIRA data and system.

All versions of JIRA prior to 4.2.1 are affected.

Risk Mitigation

We strongly recommend upgrading your JIRA installation to fix these vulnerabilities. Please see the 'Fix' section below.

Fix

JIRA's XSRF protection has been extended to cover previously unprotected areas. The known XSRF issues have been fixed in JIRA 4.2.1 and later, and are available as a patch for JIRA 3.13.5, 4.0.2 and 4.1.2 (please see JRA-22493).

Vulnerability in Secure Tokens

Severity

Atlassian rates this vulnerability as **moderate**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a vulnerability relating to the creation of secure tokens, which are used in various authentication mechanisms. These vulnerabilities have security implications and are especially important for anyone running publicly accessible instances of JIRA.

- Unauthorised users may be able to gain access to JIRA on behalf of a legitimate user.

Vulnerability

A highly skilled attacker could potentially forge a secure token, allowing them to impersonate a legitimate user.

All versions of JIRA prior to 4.2 are affected.

Risk Mitigation

We strongly recommend upgrading your JIRA installation to fix this vulnerabily. Please see the 'Fix' section below.

Fix

This issue has been fixed in JIRA 4.2 and later. The random number-generator that is used to generate tokens has been hardened.

Vulnerability in Component Data

Severity

Atlassian rates this vulnerability as **low**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a data vulnerability in JIRA. This vulnerability has security implications and is especially important for anyone running publicly accessible instances of JIRA.

- Unauthorised users may be able to view a list of components defined in your JIRA system.

Vulnerability

Component data could be view by unauthorised users.

All versions of JIRA prior to 4.2 are affected.

Risk Mitigation

We strongly recommend upgrading your JIRA installation to fix this vulnerabily. Please see the 'Fix' section below.

Fix

This issue has been fixed in JIRA 4.2 and later.

JIRA Security Advisory 2010-06-18

In this advisory:

- XSS Vulnerabilities in URL Query Strings
- JIRA Standalone Vulnerability with Session Cookies
- Users without the 'JIRA Users' Permission can Login via Crowd Single Sign On
- XSRF Vulnerability in 'Logout' Action
- Security Vulnerabilities in FishEye Plugin
- Security Vulnerabilities in Bamboo Plugin

XSS Vulnerabilities in URL Query Strings

Severity

Atlassian rates these vulnerabilities as **critical**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed several cross-site scripting (XSS) vulnerabilities in JIRA, which may affect JIRA instances. These vulnerabilities have security implications and are especially important for anyone running publicly accessible instances of JIRA.

- An attacker might take advantage of the vulnerability to steal other users' session cookies or other credentials, by sending the credentials back to the attacker's own web server. The attacker could potentially then gain control over the underlying JIRA system and/or the underlying operating system, based on the privileges of the user whose credentials had been stolen.
- The attacker's text and script might be displayed to other people viewing a JIRA page. This is potentially damaging to your company's reputation.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Vulnerability

Some values from JIRA URLs were not correctly HTML-escaped, potentially enabling an attacker to add scripts to another user's response.

Risk Mitigation

We strongly recommend upgrading your JIRA installation to fix these vulnerabilities. Please see the 'Fix' section below.

Fix

These issues have been fixed in JIRA 4.1.2 and later. If you absolutely cannot upgrade, a patch that has been tested on JIRA 4.0.2 is available on the following holding bug: http://jira.atlassian.com/browse/JRA-21624

JIRA Standalone Vulnerability with Session Cookies

Severity

Atlassian rates this vulnerability as **high**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and incorporated an enhancement in JIRA Standalone distributions in the handling of session cookies. This has security implications which are especially important for anyone running publicly accessible instances of JIRA.

- An attacker might take advantage of this vulnerability to steal other users' session cookies, by sending the session ID credentials contained within them back to the attacker's own web server. The attacker could potentially then gain control over the underlying JIRA system and/or the underlying operating system, based on the privileges of the user whose credentials had been stolen.

Vulnerability

If an attacker makes a successful XSS attack, this vulnerability could allow the attacker to use JavaScript to access the session ID contained within a session cookie.

Risk Mitigation

We recommend upgrading your JIRA installation to fix this vulnerability. Please see the 'Fix' section below.

Fix

Cookies are now set to 'HttpOnly' in the Standalone distributions of JIRA 4.1.2 and later. 'HttpOnly' session cookies dramatically reduce the likelihood of privilege escalation through XSS attack vectors. Therefore, please upgrade to this version of JIRA to mitigate this risk.

If you are running a JIRA EAR-WAR distribution or an earlier version of JIRA, please refer to the Preventing Security Attacks guide for information on how to implement 'HttpOnly' session cookies with specific examples for configuring Tomcat version 5.5.27+.

Users without the 'JIRA Users' Permission can Login via Crowd Single Sign On

Severity

Atlassian rates this vulnerability as **high**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a vulnerability in JIRA, relating to login permission. This vulnerability has security implications and is especially important for anyone running publicly accessible instances of JIRA.

- A user might take advantage of the vulnerability to login to a JIRA instance which they are not authorised to view.

Vulnerability

This vulnerability only relates to JIRA instances that are connected to Atlassian Crowd and are using Crowd Single Sign On (SSO).

When JIRA is using the Crowd connector and Crowd SSO, a user who doesn't have the 'JIRA Users' permission can log in to JIRA using Crowd SSO.

Project-specific permissions are still enforced, so the user would only be able to see unsecured projects (that is, projects which 'Anyone' can view).

Risk Mitigation

We strongly recommend upgrading your JIRA installation to fix this vulnerability. Please see the 'Fix' section below.

Fix

This issue has been fixed in JIRA 4.1.2 and later. If you absolutely cannot upgrade, you can try replacing the `crowd-integration-client-1.6.1.jar` located in the <root-dir>/WEB-INF/lib directory with the newer version that comes with JIRA 4.1.2, namely `crowd-integration-client-2.0.4.jar`. Although this configuration has not been subjected to Atlassian's quality assurance processes, we believe the upgrade of that library should work and will fix this security bug. Customers who absolutely cannot upgrade to JIRA 4.1.2 who have any trouble with this should raise a support request at https://support.atlassian.com/ for help.

XSRF Vulnerability in 'Logout' Action

Severity

Atlassian rates this vulnerability as **high**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed an XSRF (cross-site request forgery) vulnerability in JIRA, relating to the Logout action.

- An attacker might take advantage of the vulnerability to force logout. This could be used for a DOS (denial of service) attack.

You can read more about XSRF attacks at cgisecurity.

Vulnerability

An attacker could insert malicious text into an issue, which would force logout for any user who viewed that issue.

Risk Mitigation

We strongly recommend upgrading your JIRA installation to fix this vulnerability. Please see the 'Fix' section below.

Fix

This issue has been fixed in JIRA 4.1.2 and later.

Security Vulnerabilities in FishEye Plugin

Severity

Atlassian rates these vulnerabilities as **critical**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

Please see the JIRA FishEye Plugin Security Advisory 2010-06-18 for details.

Vulnerability

These vulnerabilities relate to the JIRA FishEye Plugin, which is bundled with JIRA. Only JIRA instances where the JIRA FishEye Plugin is enabled are affected.

Risk Mitigation

We strongly recommend upgrading your JIRA installation (or this plugin) to fix this vulnerability. Please see the 'Fix' section below.

Fix

These issues have been fixed in JIRA 4.1.2 and later. Upgrading to this version of JIRA will fix these vulnerabilities.

Alternatively, if you are running JIRA 4.1 or 4.1.1 and cannot upgrade JIRA to version 4.1.2 immediately, you can fix these vulnerabilities by upgrading the FishEye plugin. Otherwise, you can disable disable the JIRA FishEye plugin via the JIRA administration interface.

Security Vulnerabilities in Bamboo Plugin

Severity

Atlassian rates these vulnerabilities as **critical**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

Please see the JIRA Bamboo Plugin Security Advisory 2010-06-18 for details.

Vulnerability

These vulnerabilities relate to the JIRA Bamboo Plugin, which is bundled with JIRA. Only JIRA instances where the JIRA Bamboo Plugin is enabled are affected.

Risk Mitigation

We strongly recommend upgrading your JIRA installation (or this plugin) to fix this vulnerability. Please see the 'Fix' section below.

Fix

These issues have been fixed in JIRA 4.1.2 and later. Upgrading to this version of JIRA will fix these vulnerabilities.

Alternatively, if you are running a version of JIRA from 4.0 to 4.1.1 (inclusive) and cannot upgrade JIRA to version 4.1.2 immediately, you can fix these vulnerabilities by upgrading the Bamboo plugin. Otherwise, you can disable disable the JIRA Bamboo plugin via the JIRA administration interface.

JIRA Security Advisory 2010-04-16

> Several security vulnerabilities have been exposed on JIRA. Please refer to this document **before proceeding** to determine if your system has been compromised.

In this advisory:

- Privilege Escalation Vulnerabilities
  - Severity
  - Risk Assessment
  - Risk Mitigation
  - Vulnerability
  - Fix
- XSS Vulnerabilities in JIRA

    - Severity
    - Risk Assessment
    - Risk Mitigation
    - Vulnerability
    - Fix
- Available Patches

Privilege Escalation Vulnerabilities

Severity

Atlassian rates these vulnerabilities as **critical**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed several privilege escalation vulnerabilities, which may affect JIRA instances. These vulnerabilities have security implications and are especially important for anyone running publicly accessible instances of JIRA.

An attacker, who has gained administrator access to a JIRA instance, could set the attachment, index or backup paths to a location within the JIRA web application directory. Once this has been done, the attacker can upload malicious code that can execute in the context of the user running the application server in which JIRA is deployed. The attacker could potentially modify JIRA's files and capture user credentials. If you have followed standard guidelines for hardening your application servers, then your instance should be less susceptible to this vulnerability.

The JIRA web application directory is either the `atlassian-jira` subdirectory (for JIRA Standalone installations) or the `webapps` subdirectory for JIRA WAR installations on Tomcat. For other application servers, please consult that application server's relevant documentation for discovering the web application directory.

Risk Mitigation

We strongly recommend either upgrading or patching your JIRA installation to fix these vulnerabilities. Please see the 'Fix' section below.

> Note: If you are an Atlassian JIRA Studio or Hosted customer, we have assessed that your system is secure and implemented additional protections for it.

We also strongly recommend that you secure your JIRA instance by following these instructions, even if you are not in a position to apply the patches immediately.

Vulnerability

All versions of JIRA are affected by these privilege escalation vulnerabilities.

As a consequence of these security fixes, the following changes to JIRA's behaviour have occurred.

- JIRA now recognises a new variable called (`jira.paths.set.allowed`) in the `jira-application.properties` file that collectively enables or disables the following capabilities through the JIRA user interface:
    - Setting the attachments directory
    - Setting the indexing directory
    - Setting the backup directory for the backup service
    - Restoring XML data from a JIRA XML backup
    - Setting the directory in the "Create issues from local files" service
    - Viewing the list of administrators through the "Contact Administrators" link in the footer.

    On initial application of this patch, the `jira.paths.set.allowed` property will not be present in this file and all settings above will be disabled by default. We recommend that this property be absent from your `jira-application.properties` file or if it is present, set its value to `false`.

- JIRA now recognises another new variable called (`jira.paths.safe.backup.path`) in the `jira-application.properties` file which specifies a safe path for XML backup. This property only applies to the 'Backup Data to XML' function and not the scheduled backup service. If the property is not present, 'Backup Data to XML' will not be allowed. The file name specified in the user interface will be appended to the safe path and used to determine the destination of the backup file. Please ensure that the safe path is separate from your web application directory.

    On initial application of this patch, the `jira.paths.safe.backup.path` property will not be present in this file.

- System logs and customer data from generated support requests have been removed. The automatically generated support request sent to Atlassian will no longer include system logs and the XML backup.

Fix

These issues have been fixed in JIRA 4.1.1 and later.

These fixes are also provided as a patch for JIRA 4.1 and previous versions of JIRA. See Available Patches (below) for the complete list of available patches.

These patches are also available from JIRA issue JRA-21004. These patches also address the XSS vulnerabilities described below.

> In addition to patching your instance, we strongly recommend that you also review these instructions on securing your JIRA instance (and any other web application).

XSS Vulnerabilities in JIRA

Severity

Atlassian rates these vulnerabilities as **critical**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed several cross-site scripting (XSS) vulnerabilities in JIRA, which may affect JIRA instances. These vulnerabilities have security implications and are especially important for anyone running publicly accessible instances of JIRA.

- The attacker might take advantage of the vulnerability to steal other users' session cookies or other credentials, by sending the credentials back to the attacker's own web server.
- The attacker's text and script might be displayed to other people viewing a JIRA page. This is potentially damaging to your company's reputation.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Risk Mitigation

We strongly recommend either upgrading or patching your JIRA installation to fix these vulnerabilities. Please see the 'Fix' section below.

We also strongly recommend that you secure your JIRA instance by following these instructions, even if you are not in a position to apply the patches immediately.

Vulnerability

All versions of JIRA are affected by these XSS vulnerabilities.

An attacker can inject their own JavaScript into the JIRA components listed in the table below. Each of the actions is invoked when a user performs a specific function in JIRA, such as clicking a link or a button. The actions can also be invoked by simply entering the URL into the browser address bar. The rogue JavaScript will be executed when a user invokes the URL.

JIRA page	Routes of XSS attack
Colour Picker (colorpicker.jsp)	XSS code injection into the 'element' or 'defaultColor' URL parameters.
User Picker (userpicker.jsp)	XSS code injection into the 'formName' or 'element' URL parameters. The full name field is another route, in which XSS scripts in this field can be executed when a user views its field content via the User Picker.
Group Picker (grouppicker.jsp)	XSS code injection into the 'formName' or 'element' URL parameter. The group name field is another route, in which code in this field can be executed when a user views its field content via the Group Picker.
Announcement Banner Preview	If the URL parameter 'announcement_preview_banner_st' is appended to the URL for most pages in JIRA, it is a potential route for exploitation by XSS scripts.
Support-related JSP pages	The following JSP pages can be exploited by XSS scripts. We have disabled these pages in JIRA and they are no longer available. • .../secure/admin/groupnames.jsp • .../secure/admin/indexbrowser.jsp • .../secure/admin/debug/classpath-debug.jsp • .../secure/admin/viewdocument.jsp • .../secure/admin/cleancommentspam.jsp
runportleterror.jsp	XSS code injection into the 'portletKey' URL parameter.
issuelinksmall.jsp	XSS scripts appended to the end of the URL.
screenshot-redirecter.jsp	XSS code injection into the 'afterURL' URL parameter.
500page.jsp	XSS code injection into the 'Referrer' HTTP request header.

Fix

These issues have been fixed in JIRA 4.1.1 and later.

These fixes are also provided as a patch for JIRA 4.1 and previous versions of JIRA. See Available Patches (below) for the complete list of available patches.

These patches are also available in JIRA issue JRA-21004. The patches also address the privilege escalation vulnerabilities described above.

> In addition to patching your instance, we strongly recommend that you also review these instructions on securing your JIRA instance (and any other web application).

Available Patches

The available patches address both the Privilege Escalation and XSS Vulnerabilities. They can be obtained from JRA-21004, or directly downloaded from the table below. To install the patch, please follow the instructions in the patch file.

> The patches below override the patches previously available at JRA-20994 and JRA-20995. We have incorporated both patches into one. Please ensure that you install this unified patch regardless of whether you have previously applied patches at JRA-20994 or JRA-20995 as it contains additional improvements. You do not need to uninstall previous patches.

Version	File
4.1	patch-JRA-21004-4.1.zip
4.0.2	patch-JRA-21004-4.0.2.zip
4.0.1	patch-JRA-21004-4.0.1.zip
4.0	patch-JRA-21004-4.0.zip
3.13.5	patch-JRA-21004-3.13.5.zip
3.13.4	patch-JRA-21004-3.13.4.zip
3.13.3	patch-JRA-21004-3.13.3.zip
3.13.2	patch-JRA-21004-3.13.2.zip
3.13.1	patch-JRA-21004-3.13.1.zip
3.13	patch-JRA-21004-3.13.zip
3.12.3	patch-JRA-21004-3.12.3.zip
3.12.2	patch-JRA-21004-3.12.2.zip
3.12.1	patch-JRA-21004-3.12.1.zip
3.12	patch-JRA-21004-3.12.zip

> Several security vulnerabilities have been exposed on JIRA. Please refer to this page to determine if your system has been compromised.

Security Addendum 2010-04-16 - Determining if your public JIRA instance has been compromised

> This information only applies to **JIRA instances accessible from the Internet**.
>
> If you are an Atlassian JIRA Studio or Hosted customer, we have assessed that your system is secure and implemented additional protections for it.

On this page:

- Overview
- 1. Check for modified files on the server
- 2. Check your access logs for the attack vectors
    - 2.1 Administrative setting changes from unknown IP addresses

    - 2.2 Check for an unusually large number of login attempts
    - 2.3 Cross-Site Scripting attacks
- 3. Verify the integrity of existing JIRA administrator accounts
- Additional Resources
- If you suspect that your JIRA instance has been compromised

Overview

In April 2010, some public JIRA sites were attacked via security vulnerabilities in JIRA. This document provides instructions on how to determine if your JIRA instance has been compromised. Please refer to the JIRA Security Advisory 2010-04-16 for more information about these vulnerabilities and patching your JIRA instances.

The attacker would require web access to your JIRA instance. If your JIRA instance is behind a firewall and you are maintaining usual security measures to restrict external access to this JIRA instance (for example, removing user accounts of individuals who no longer require access to it), then there is low risk of your JIRA instance being attacked.

If your JIRA instance was compromised, the attacker would have initially gained administrative privileges via an XSS attack or by successfully discovering a JIRA administrator's password. Once the system is compromised, the attacker would be able to read and modify files and database information.

> **IMPORTANT!**
>
> If it is determined that your JIRA instance has been compromised, our advice is to immediately shut down JIRA and disconnect the server from the network/Internet. Also, you may want to immediately shut down any other systems which potentially share a userbase or have common username/password combinations with the compromised system. Do not apply the patch described in JIRA Security Advisory 2010-04-16 until you have worked with your local security team to identify the scope of the breach and your recovery options.

To determine if your JIRA instance has been compromised, please do the following:

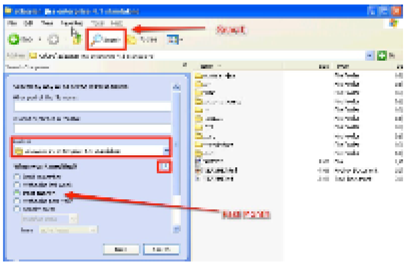
1. Check the server running JIRA for recently modified files
2. Check your access logs for the attack vectors
3. Verify the integrity of existing JIRA administrator accounts

1. Check for modified files on the server

Running the following command in UNIX-based systems (for example, Linux and Mac OS X) will show all files modified in the last fifteen days:

```
find /path/to/JIRA -mtime -15
```

On Windows, you can search for files using the graphical search utility:



Check for any files in the JIRA installation that have not been modified by you or one of your known administrators within this time period.

The files which are likely to have been affected by these attacks include the following:

- a modified `WEB-INF/web.xml` file, such as the addition of new servlet filters
- newly added or modified JAR files in `WEB-INF/lib/`
- newly added JSP files at various places inside the web application
- newly added GIF files in `/images/`

> This information only refers to known exploits. You should check *all* modified files in the web application, including files for which you do not have records of having changed and compare them to an unmodified copy of a JIRA distribution, such as one downloaded from the Atlassian website.

If you need more information, please contact Atlassian support using the **Get Support** link below.

2. Check your access logs for the attack vectors

JIRA does not keep access logs unless you have manually configured it. However, many web servers like Apache HTTPD are set up to capture access logs by default. If your web server or application server or JIRA has been configured to generate access logs, you can use these logs to check for the access patterns below.

To check for patterns in access logs on Unix-based systems (e.g. Linux, Mac OS X), you can use the `grep` tool on one or more files:

```
grep 'search-string' *.log
```

To check for patterns in access logs on Windows, you can use the `findstr` tool on the command line:

```
findstr "search-string" *.log
```

2.1 Administrative setting changes from unknown IP addresses

The attacker may have modified the attachment directory configured in the JIRA administration area. To check for access to the vulnerable settings pages, search the access logs for:

- `secure/admin/EditAttachmentSettings`
- `secure/admin/IndexReIndex`
- `secure/admin/EditService`
- `secure/admin/XmlBackup`
- `secure/admin/XmlRestore`
- `secure/admin/JiraSupportRequest`

Below is an example of access logs which contain changes to the attachment settings on a JIRA instance.

```
...
...
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "GET
/secure/admin/jira/EditAttachmentSettings!default.jspa HTTP/1.1" 200 7259 "-" "-" 518092
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST
/secure/admin/jira/EditAttachmentSettings.jspa HTTP/1.1" 302 20 "-" "-" 50425
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "GET
/secure/admin/jira/EditAttachmentSettings!default.jspa HTTP/1.1" 200 7288 "-" "-" 53665
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST
/secure/admin/jira/EditAttachmentSettings.jspa HTTP/1.1" 302 20 "-" "-" 13190
...
...
```

If you need more information, please contact Atlassian support using the **Get Support** link below.

2.2 Check for an unusually large number of login attempts

It is possible that administrative access may have been gained via a brute-force attack. To get a list of all login attempts, search the access logs for:

- `/login.jsp`

Evidence of such an attack will look like this in the access logs where the timestamps between requests are very close together and the number of attempts is extremely high:

```
...
...
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5547 "-" "-"
126482
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5542 "-" "-"
119285
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5547 "-" "-"
119801
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5557 "-" "-"
117931
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5546 "-" "-"
116953
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5547 "-" "-"
125371
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5549 "-" "-"
117773
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5548 "-" "-"
119681
xxx.xxx.xxx.xxx - - [xx/Apr/2010:00:00:00 -0500] "POST /login.jsp HTTP/1.1" 200 5545 "-" "-"
126654
...
...
```

If you need more information, please contact Atlassian support using the **Get Support** link below.

2.3 Cross-Site Scripting attacks

Cross-Site Scripting (XSS) attacks were attempted on sites at Apache. These XSS attacks were attempts to steal other users' session cookies or other credentials, by sending the credentials back to the attacker's own web server.

For more information about XSS attacks, please refer to the relevant articles on the cgisecurity, CERT websites.

If XSS attacks have occurred on your JIRA instance, the following strings may be present in your access logs:

- `<script`
- `%3Cscript`
- `</script>`
- `document.cookie`
- `document.write`
- `window.location`

More advanced patterns to identify XSS requests (and those of other injection-type attacks) from access logs can be found on Symantec's Detection of SQL Injection and Cross-site Scripting Attacks.

If you need more information, please contact Atlassian support using the **Get Support** link below.

3. Verify the integrity of existing JIRA administrator accounts

The attacker could gain administration access via a brute-force attack to determine an administrator's password. Once access is gained, a number of different actions could be performed, including:

- The addition of a new administrative account
  or
- Modification of an existing user account's email address or password and subsequent use of that account

You should check that all emails are valid and that all administrator accounts are known users.

If you need more information, please contact Atlassian support using the **Get Support** link below.

Additional Resources

- Apache Blog
- cgisecurity article
- CERT article

If you suspect that your JIRA instance has been compromised

If you suspect your JIRA instance has been compromised we strongly recommend involving your local security team for further investigation. Atlassian is happy to review your customer log files and provide an opinion on whether your system has been compromised. To request this please file a support request via http://support.atlassian.com/.

Please note, however, that the final determination of whether your JIRA instance has been compromised and what actions to take as a result remains with you the customer.

If it is determined that your JIRA instance has been compromised, our advice is to immediately shut down JIRA and disconnect the server from the network/Internet. Also, you may want to immediately shut down any other systems which potentially share a userbase or have common username/password combinations with the compromised system. Do not apply the patch described in JIRA Security Advisory 2010-04-16 until you have worked with your local security team to identify the scope of the breach and your recovery options.

Security Addendum 2010-04-16 - Preventing security attacks

In April 2010, JIRA sites were attacked via security vulnerabilities in JIRA. These vulnerabilities will be fixed in JIRA 4.1.1, and patches are available for earlier versions of JIRA.

For more information:

- about these vulnerabilities and patching your JIRA instance, see JIRA Security Advisory 2010-04-16
- on how to determine whether your public JIRA instance has been compromised please refer to the detection guide.

> Note: If you are an Atlassian JIRA Studio or Hosted customer, we have assessed that your system is secure and implemented additional protections for it.

To the best of our knowledge, the following guidelines will help prevent attacks of the kind recently experienced.

- 1. Use Strong Passwords
    - 1.1 Administrators should use Strong Passwords
    - 1.2 Administrators should have Different Passwords for Different Systems
- 2. Apply JIRA Security Patches
- 3. Protect Against Brute Force Attack
    - 3.1 Upgrade to JIRA 4.1
    - 3.2 Enable Brute Force Login Protection on your Web Server
- 4. Restrict Network Access to Administrative Sections of Applications
- 5. Restrict File System Access by the Application Server
- 6. Disable Jelly

1. Use Strong Passwords

1.1 Administrators should use Strong Passwords

All your JIRA administrators, JIRA system administrators and administrators of all Atlassian products should have strong passwords. Ask your administrators to update their passwords to strong passwords.

Do not use passwords that are dictionary words. Use mixed-case letters, numbers and symbols for your administrator passwords and make sure they are sufficiently long (e.g. 14 characters). We encourage you to refer to the Strong Password Generator for guidelines on selecting passwords.

Using strong passwords greatly increases the time required by an attacker to retrieve your passwords by brute force, making such an attack impractical.

1.2 Administrators should have Different Passwords for Different Systems

As well as choosing a strong password, administrators should have *different* strong passwords for different systems.

This will reduce the impact the attacker can have if they do manage to obtain administrator credentials on one of your systems.

2. Apply JIRA Security Patches

Apply the patches found in JIRA Security Advisory 2010-04-16 for your version of JIRA.

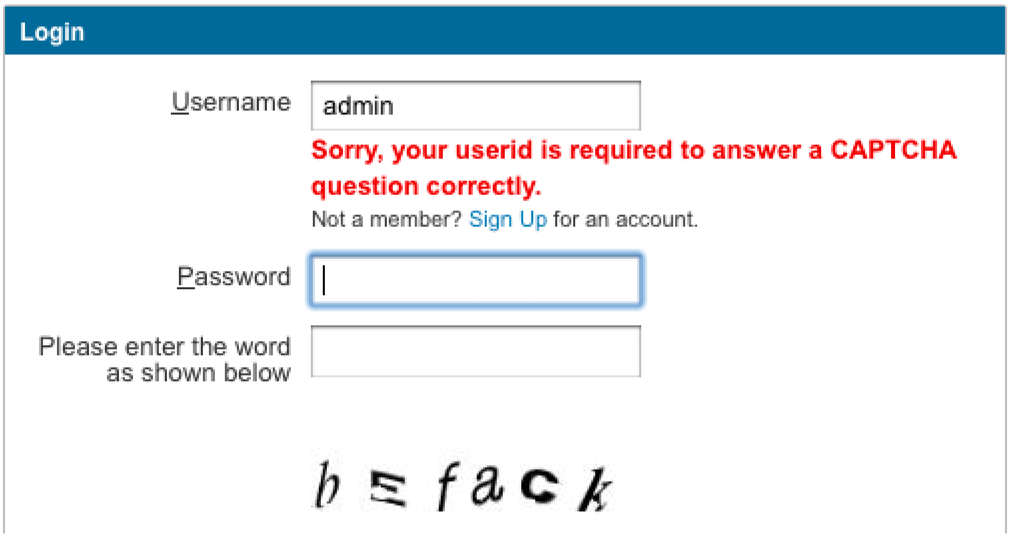
These patches protect JIRA from recently detected privilege escalation and XSS vulnerabilities.

3. Protect Against Brute Force Attack

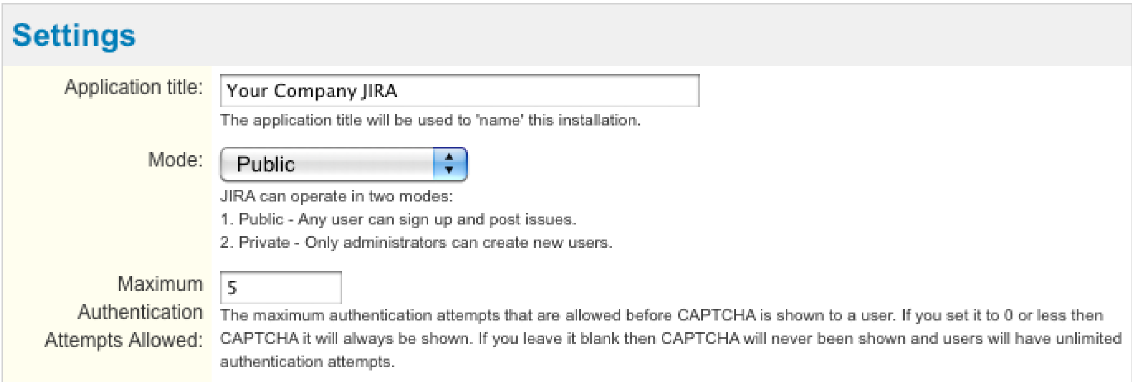
You can also actively protect your systems against repeated unsuccessful login attempts, known as "brute force" login attacks.

3.1 Upgrade to JIRA 4.1

JIRA 4.1 contains built-in protection for brute force attacks by displaying a CAPTCHA after a number of failed authentication attempts.



In JIRA 4.1.1 this option is enabled by default. (Please refer to the JIRA 4.1.1 Upgrade Guide for details.) To enable this protection in JIRA 4.1, log in as an administrator and navigate to Administration -> General Configuration and set the "Maximum Authentication Attempts Allowed" to a small number (e.g. 5).



For more details, see Configuring JIRA Options.

3.2 Enable Brute Force Login Protection on your Web Server

It is possible to also enable brute force login protection on your web server by detecting repeated authentication failures in application logs. Once repeated login failures have been detected, you can set up an automated system to ban access to your web server from that particular IP address.

For more information on how to configure an automated approach to this kind of login prevention, refer to Using Fail2Ban to limit login attempts.

4. Restrict Network Access to Administrative Sections of Applications

An Atlassian application's administration interface is a critical part of the application; anyone with access to it can potentially compromise not only the application instance but the entire machine. As well as limiting access to only users who really need it, and using strong passwords, you should consider limiting access to it to certain machines on the network.

For more information on how to implement Apache blocking rules to restrict access to administrative or sensitive actions in:

- JIRA, refer to Using Apache to Limit Access to the JIRA Administration Interface
- Confluence, refer to Using Apache to limit access to the Confluence administration interface

You can use a similar approach to protecting all Atlassian applications.

5. Restrict File System Access by the Application Server

The application server (e.g. Tomcat) runs as a process on the system. This process is run by a particular user and inherits the file system rights of that particular user. By restricting the directories that can be written to by the application server user, you can limit unnecessary exposure of your file system to the application.

For example, in the JIRA Standalone (or WAR distribution on Tomcat), ensure that only the following directories can be written to by Tomcat:

* logs * temp * work * database (this directory will be created the first time you run JIRA) * your JIRA Home directory

For detailed instructions, please see Tomcat security best practices.

6. Disable Jelly

Jelly is disabled in JIRA by default. If you need to use Jelly, you should enable it immediately prior to use and disable it immediately afterwards. See the JIRA Jelly Tags documentation for details.

JIRA Security Advisory 2009-04-02

In this advisory:

- Security Vulnerabilities
  - HTTP Header Injection Flaw
  - DWR XSS Security Hole
  - XSS vulnerability in various JIRA parameters
- Security Vulnerabilities - JIRA Plugins
  - JIRA Charting Plugin XSS Security Hole

Security Vulnerabilities

HTTP Header Injection Flaw

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw is a HTTP Header injection vulnerability in JIRA. This potentially allows a malicious user (hacker) to hack the header response to insert malicious code. A hacker could present the hacked URL to users (e.g. disguised in an email). If any users click the URL, the malicious code would be executed in the user's session.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker could also gain control over the underlying system, based on the privileges of the user whose session cookie has been stolen.
- The hacker could redirect the user to undesirable web sites. This is potentially damaging to your company's reputation.

Atlassian recommends that you upgrade to JIRA 3.13.3 to fix the vulnerabilities described below.

Risk Mitigation

We strongly recommend that you upgrade or apply the necessary patch as soon as possible.

If you are unable to do this, you may wish to consult the vendor of your application server to see whether your application server is immune to header injection vulnerabilities or has configuration options to prevent such attacks. For example, the Coyote (HTTP) connector in Tomcat version 5.5 and later is immune to header injection attacks, as acknowledged in this reference.

Please note, the time required to fix this vulnerability and the extent of its effectiveness will depend on your application server and its configuration.

> **Technical Note**
> In your application server, header injection vulnerabilities can be mitigated if the `setHeader()`, `addHeader()`, and `sendRedirect()` methods in the `HttpServletResponse` class have their parameters properly checked for header termination characters. You may wish to forward this information to the vendor of your application server to help them advise whether they have any countermeasures to protect your application server against header injection attacks.

Vulnerability

All versions of JIRA are vulnerable to this security flaw.

Fix

The fix updates the Seraph framework to a version which correctly encodes and validates redirect URLs before sending them back to the user.

This issue has been fixed in JIRA 3.13.3 or later. The fix is also provided as a patch for JIRA 3.12.3 and 3.11. There are no patches available for JIRA versions 3.10.x and earlier. We recommend that you upgrade to at least JIRA 3.11 to apply this patch.

Available JIRA Patches

JIRA 3.12.3

A replacement seraph jar for JIRA 3.12.3 is available here: atlassian-seraph-0.38.3.jar

Replace JIRA's existing seraph jar with the updated one:

1. Delete the existing seraph jar in WEB-INF/lib/atlassian-seraph-0.37.2.jar
2. Place the replacement atlassian-seraph-0.38.3.jar into WEB-INF/lib

jar file	atlassian-seraph-0.38.3.jar
MD5 sum	atlassian-seraph-0.38.3.jar.md5

JIRA 3.11

A replacement seraph jar for JIRA 3.11 is available here: seraph-0.7.21.1.jar

Replace JIRA's existing seraph jar with the updated one:

1. Delete the existing seraph jar in WEB-INF/lib/seraph-0.7.21.jar
2. Place the replacement seraph-0.7.21.1.jar into WEB-INF/lib

jar file	seraph-0.7.21.1.jar
MD5 sum	seraph-0.7.21.1.jar.md5

JIRA 3.10.x and earlier

There are no patches available for JIRA versions 3.10.x or earlier. We recommend that you upgrade to at least JIRA 3.11.

DWR XSS Security Hole

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw is a XSS vulnerability in the DWR library in JIRA. This potentially allows a malicious user (hacker) to hack the URL to insert special JavaScript. A hacker could present the hacked URL to users (e.g. disguised in an email). If any users click the URL, the special JavaScript would be executed in the user's session.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker could also gain control over the underlying system, based on the privileges of the user whose session cookie has been stolen.
- The hacker's text and script might be displayed to other people on any JIRA page which has a form. This is potentially damaging to your company's reputation.

Atlassian recommends that you upgrade to JIRA 3.13.3 to fix the vulnerabilities described below.

Risk Mitigation

We recommend that you upgrade or apply the necessary patch as soon as possible. If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

All versions of JIRA are vulnerable to this security flaw.

Fix

The fix is to upgrade the DWR library shipped with JIRA to version 2.0.3. This version of the DWR library does not have this security flaw.

This issue has been fixed in JIRA 3.13.3 or later. The fix is also provided as a patch for JIRA 3.12.3 and 3.11. There are no patches available for JIRA versions 3.10.x or earlier. Please see JRA-16072 for further details.

Available JIRA Patches

JIRA 3.12.3

The patches for JIRA 3.12.3 are available in the file jra-16072-3.12.3-patch.zip

Patch Zip File	jra-16072-3.12.3-patch.zip
Patch Instructions	jra-16072-3.12.3-patch-instructions.txt
Patch CheckSum	jra-16072-3.12.3-patch.zip.md5

If you are using a version of JIRA 3.12.x prior to version 3.12.3, you will need to upgrade to JIRA 3.12.3 before applying this patch.

JIRA 3.11

The patches for JIRA 3.11 are available in the file jra-16072-3.11-patch.zip

Patch Zip File	jra-16072-3.11-patch.zip
Patch Instructions	jra-16072-3.11-patch-instructions.txt
Patch CheckSum	jra-16072-3.11-patch.zip.md5

JIRA 3.10.x and earlier

There are no patches available for JIRA versions 3.10.x or earlier. We recommend that you upgrade to at least JIRA 3.11.

XSS vulnerability in various JIRA parameters

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a number of security flaws which may affect JIRA instances in a public environment. The flaws are all XSS (cross-site scripting) vulnerabilities in various JIRA parameters. Each vulnerability potentially allows a malicious user (hacker) to embed their own JavaScript into a JIRA page.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker could also gain control over the underlying system, based on the privileges of the user whose session cookie has been stolen.

Atlassian recommends that you upgrade to JIRA 3.13.3 to fix the vulnerabilities described below.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

A hacker can inject their own JavaScript into various JIRA parameters, described in the table below. If rogue JavaScript is injected into a parameter of a URL, the JavaScript will be executed when a user invokes the URL for the page.

JIRA page	Description
lazyLoader *(portlet loader)*	portletId
`CreateIssueDetails.jspa`	duedate

`EditIssue.jspa`	duedate
`jira.issueviews:searchrequest-fullcontent/temp/SearchRequest.html`	sorter/field, sorter/order
`jira.issueviews:searchrequest-printable/temp/SearchRequest.html`	sorter/order

For more information, please see JRA-16369.

Fix

The fix is to HTML-encode the vulnerable parameters to prevent scripts from being executed from them.

This issue has been fixed in JIRA 3.13.3 only. There are no patches available for previous versions of JIRA, for this fix.

Security Vulnerabilities — JIRA Plugins

JIRA Charting Plugin XSS Security Hole

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed two security flaws in the JIRA Charting plugin which may affect JIRA instances in a public environment that use this plugin. These flaws are XSS vulnerabilities in view actions for the JIRA Charting plugin. This potentially allows a malicious user (hacker) to hack the URL to insert special JavaScript. A hacker could present the hacked URL to users (e.g. disguised in an email). If any users click the URL, the special JavaScript would be executed in the user's session.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker could also gain control over the underlying system, based on the privileges of the user whose session cookie has been stolen.
- The hacker's text and script might be displayed to other people on any JIRA page which has a form. This is potentially damaging to your company's reputation.

Atlassian recommends that you upgrade your JIRA Charting plugin to version 1.4.1 to fix the vulnerabilities described below.

Risk Mitigation

We recommend that you upgrade your JIRA Charting plugin as soon as possible. If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

JIRA instances that use the JIRA Charting plugin (any version) are vulnerable to this security flaw.

Fix

The fix is to HTML encode the appropriate values in the JIRA Charting plugin actions. Please see JCHART-256 and JCHART-257 for further details.

This issue has been fixed in the JIRA Charting plugin 1.4.1 or later. Please see the plugin page to check compatibility with your JIRA version.

Please let us know what you think of the format of this security advisory and the information we have provided.

JIRA Security Advisory 2008-12-09

In this advisory:

- Security Vulnerabilities
  - WebWork 1 Parameter Injection Hole
- Available JIRA Patches
  - JIRA 3.13.1
  - JIRA 3.12.3
  - JIRA 3.11

- JIRA 3.10.2
- JIRA 3.9.3
- JIRA 3.8.1
- JIRA 3.7.4
- JIRA 3.6.5
- JIRA 3.5.3
- JIRA 3.4.x and earlier

Security Vulnerabilities

WebWork 1 Parameter Injection Hole

Severity

Atlassian rates this vulnerability as **CRITICAL**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw is a parameter injection vulnerability in the implementation of the WebWork 1 web application framework in JIRA. The Webwork 1 web application framework allows for the dynamic transformation of URL parameters into method calls. This potentially allows a malicious user (hacker) to call exposed public methods in JIRA via specially formatted URLs.

Atlassian recommends that you upgrade to JIRA 3.13.2 to fix the vulnerabilities described below.

Risk Mitigation

We **strongly recommend** that you upgrade or apply the necessary patch as soon as possible. If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

All versions of JIRA are vulnerable to this security flaw.

A number of public JIRA methods are exposed to this vulnerability. These methods can be called via specially formatted URLs. The method names are not listed for security reasons.

Fix

The fix is to process parameters via a trusted implementation of the action factory in the Webwork 1 web application framework, which provides more secure method transformations.

This issue has been fixed in JIRA 3.13.2 or later. The fix is also provided as a patch for JIRA 3.12.3, 3.11, 3.10.2, 3.9.3, 3.8.1, 3.7.4, 3.6.5 and 3.5.3. There are no patches available for JIRA versions 3.4.x or earlier. We recommend that you upgrade to at least JIRA 3.5.x to apply this patch.

Available JIRA Patches

JIRA 3.13.1

The patches for JIRA 3.13.1 are available in the file jra-15664-3.13.1-patch.zip

Patch Zip File	jra-15664-3.13.1-patch.zip
Patch Instructions	jra-15664-3.13.1-patch-instructions.txt
Patch CheckSum	jra-15664-3.13.1-patch.zip.md5

If you are using a version of JIRA 3.13.x **prior to version 3.13.1**, you will need to upgrade to JIRA 3.13.1 before applying this patch.

JIRA 3.12.3

The patches for JIRA 3.12.3 are available in the file jra-15664-3.12.3-patch.zip

Patch Zip File	jra-15664-3.12.3-patch.zip
Patch Instructions	jra-15664-3.12.3-patch-instructions.txt

Patch CheckSum	jra-15664-3.12.3-patch.zip.md5

If you are using a version of JIRA 3.12.x **prior to version 3.12.3**, you will need to upgrade to JIRA 3.12.3 before applying this patch.

JIRA 3.11

The patches for JIRA 3.11 are available in the file jra-15664-3.11-patch.zip

Patch Zip File	jra-15664-3.11-patch.zip
Patch Instructions	jra-15664-3.11-patch-instructions.txt
Patch CheckSum	jra-15664-3.11-patch.zip.md5

JIRA 3.10.2

The patches for JIRA 3.10.2 are available in the file jra-15664-3.10.2-patch.zip

Patch Zip File	jra-15664-3.10.2-patch.zip
Patch Instructions	jra-15664-3.10.2-patch-instructions.txt
Patch CheckSum	jra-15664-3.10.2-patch.zip.md5

If you are using a version of JIRA 3.10.x prior to version 3.10.2, you will need to upgrade to JIRA 3.10.2 before applying this patch.

JIRA 3.9.3

The patches for JIRA 3.9.3 are available in the file jra-15664-3.9.3-patch.zip

Patch Zip File	jra-15664-3.9.3-patch.zip
Patch Instructions	jra-15664-3.9.3-patch-instructions.txt
Patch CheckSum	jra-15664-3.9.3-patch.zip.md5

If you are using a version of JIRA 3.9.x prior to version 3.9.3, you will need to upgrade to JIRA 3.9.3 before applying this patch.

JIRA 3.8.1

The patches for JIRA 3.8.1 are available in the file jra-15664-3.8.1-patch.zip

Patch Zip File	jra-15664-3.8.1-patch.zip
Patch Instructions	jra-15664-3.8.1-patch-instructions.txt
Patch CheckSum	jra-15664-3.8.1-patch.zip.md5

If you are using a version of JIRA 3.8.x prior to version 3.8.1, you will need to upgrade to JIRA 3.8.1 before applying this patch.

JIRA 3.7.4

The patches for JIRA 3.7.4 are available in the file jra-15664-3.7.4-patch.zip

Patch Zip File	jra-15664-3.7.4-patch.zip
Patch Instructions	jra-15664-3.7.4-patch-instructions.txt
Patch CheckSum	jra-15664-3.7.4-patch.zip.md5

If you are using a version of JIRA 3.7.x prior to version 3.7.4, you will need to upgrade to JIRA 3.7.4 before applying this patch.

JIRA 3.6.5

The patches for JIRA 3.6.5 are available in the file jra-15664-3.6.5-patch.zip

Patch Zip File	jra-15664-3.6.5-patch.zip
Patch Instructions	jra-15664-3.6.5-patch-instructions.txt

Patch CheckSum	jra-15664-3.6.5-patch.zip.md5

If you are using a version of JIRA 3.6.x prior to version 3.6.5, you will need to upgrade to JIRA 3.6.5 before applying this patch.

JIRA 3.5.3

The patches for JIRA 3.5.3 are available in the file jra-15664-3.5.3-patch.zip

Patch Zip File	jra-15664-3.5.3-patch.zip
Patch Instructions	jra-15664-3.5.3-patch-instructions.txt
Patch CheckSum	jra-15664-3.5.3-patch.zip.md5

If you are using a version of JIRA 3.5.x prior to version 3.5.3, you will need to upgrade to JIRA 3.5.3 before applying this patch.

JIRA 3.4.x and earlier

There are no patches available for JIRA versions 3.4.x or earlier. We recommend that you upgrade to at least JIRA 3.5.x.

Please let us know what you think of the format of this security advisory and the information we have provided.

JIRA Security Advisory 2008-10-29

In this advisory:

- Security vulnerabilities
  - XSS vulnerability on ViewProfile page
  - Return URL is not HTML escaped

Security vulnerabilities

XSS vulnerability on ViewProfile page

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw is an XSS (cross-site scripting) vulnerability in JIRA's '**ViewProfile**' page. This potentially allows a malicious user (hacker) to create a user with special JavaScript in the fullname of the user. If this user was viewed by another user in the ViewProfile page, the special JavaScript would be executed in the user's session.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker could also gain control over the underlying system, based on the privileges of the user whose session cookie has been stolen.

Atlassian recommends that you upgrade to JIRA 3.13.1 to fix the vulnerabilities described below.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

The '**ViewProfile**' page is affected. The user's 'fullname' is not HTML-escaped when the the page is viewed.

Fix

The fix is to HTML-encode the fullname of the user on the '**ViewProfile**' page, so that it cannot be used to run special scripts.

This issue has been fixed in JIRA 3.13.1 only. There are no patches available for previous versions of JIRA, for this fix. For more information, please see JRA-15733.

Return URL is not HTML escaped

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw is an XSS (cross-site scripting) vulnerability in the returnURL parameter of the URL of a form (e.g. Add Comment). This potentially allows a malicious user (hacker) to hack the URL to insert special JavaScript in the returnURL parameter. A hacker could present the hacked URL to users (e.g. disguised in an email). If any users click the URL, the special JavaScript would be executed in the user's session.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker could also gain control over the underlying system, based on the privileges of the user whose session cookie has been stolen.
- The hacker's text and script might be displayed to other people on any JIRA page which has a form. This is potentially damaging to your company's reputation.

Atlassian recommends that you upgrade to JIRA 3.13.1 to fix the vulnerabilities described below.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

All forms in JIRA are affected. The returnURL is not HTML-escaped when the the page is viewed.

Fix

The fix is to HTML-encode the returnURL of form URLs, so that it cannot be used to run special scripts.

This issue has been fixed in JIRA 3.13.1 only. There are no patches available for previous versions of JIRA, for this fix. For more information, please see JRA-15707.

Please let us know what you think of the format of this security advisory and the information we have provided.

JIRA Security Advisory 2008-08-26

In this advisory:

- Security vulnerabilities
  - XSS vulnerability in serving HTML attachments with the text/html MIME type
  - MailHandlers may create an infinite loop if the monitored mailbox receives notifications from the same instance of JIRA
  - Directory listings are enabled on Tomcat by default
  - Filters/Search Requests can be modified by URL Hacking
  - 'Manage Project Role Membership for Project' page can be viewed publicly

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Security vulnerabilities

XSS vulnerability in serving HTML attachments with the text/html MIME type

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and addressed a security vulnerability which may affect JIRA instances in a public environment. This is an XSS (cross-site scripting) vulnerability in JIRA's service of HTML attachments (or other active content, such as Javascript, Flash, etc) with the text/html MIME type, which potentially allows a malicious user (attacker) to insert their own HTML tags or script into an action.

- The attacker could take advantage of this vulnerability to steal other users' session cookies or other credentials, by sending the credentials back to the attacker's own web server.
- The attacker's text and script could be displayed to other people viewing the JIRA issue. This is potentially damaging to your company's reputation.

Atlassian recommends that you upgrade to JIRA 3.13 to fix the vulnerabilities described below.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Risk Mitigation

If you judge it necessary, you can disable attachments or restrict public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

Any malicious script contained in an HTML attachment of with the text/html MIME type will be run as JIRA serves the attachment, i.e. when an admin or user clicks on the uploaded HTML attachment.

Fix

The fix is to add an administration option to force all attachments in JIRA to be downloaded rather than displayed inline. Administrators can choose from the following:

- force all attachments to be downloaded in JIRA,
- let all attachments be displayed inline, or,
- for Internet Explorer users, force the download of attachments that IE detects to be html files (via mime sniffing). Declared html attachments are also never displayed inline.

Read the documentation for further details on configuring this setting.

This issue has been fixed in JIRA 3.13 only. There are no patches available for previous versions of JIRA, for this fix.

MailHandlers may create an infinite loop if the monitored mailbox receives notifications from the same instance of JIRA

Severity

Atlassian rates this vulnerability as **MEDIUM**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw means that mailhandlers can potentially cause infinite loops if the monitored mailbox receives notifications from the same JIRA instance.

Atlassian recommends that you upgrade to JIRA 3.13 to fix the vulnerability described below.

Risk Mitigation

If you judge it necessary, you can disable disable your mail servers or disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade.

Vulnerability

User sends an email to a JIRA mailbox, where the From and To address are the same, e.g. if an email is sent to a mailbox monitored by JIRA with a 'From' email address identical to the mailbox address it is being sent to, then JIRA will pick up the email again and start an infinite loop for that issue.
This also applies to scenarios where JIRA sends emails to an address which is an alias for a mailbox that it checks.

Fix

The fix is to add a header to the outgoing email that contains a special JIRA "fingerprint" (X-JIRA-FINGERPRINT) that is unique to the JIRA instance.

This issue has been fixed in JIRA 3.13 only. There are no patches available for previous versions of JIRA, for this fix.

Directory listings are enabled on Tomcat by default

Severity

Atlassian rates this vulnerability as **LOW**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and addressed a security flaw which may affect JIRA instances in a public environment. This flaw means that directory listings on the Tomcat application server are public by default.

Atlassian recommends that you upgrade to JIRA 3.13 to fix the vulnerability described below. Alternatively, you can manually disable the directory listing (via the <TOMCAT_HOME>/conf/web.xml file in Tomcat directory), which will force JIRA to throw HTTP 404 errors appropriately.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade.

Vulnerability

Users can browse the directory listing on the Tomcat application server, e.g. `/images/`. Please note, the information accessible by the user is already readily available to the user, or can be obtained by downloading JIRA. The webapp directories **do not** contain any user content.

Fix

The fix is to disable directory listings in Tomcat. Please refer to JRA-11634 for details.

The directory listings are disabled by default in Tomcat 5.5.26. This version is bundled with the latest version of JIRA.

This issue has been fixed in JIRA 3.13 for JIRA Standalone and for the sample Tomcat (i.e. versions 4.1, 5.0, 5.5 and 6.0) configuration files shipped with JIRA WAR/EAR. There are no patches available for previous versions of JIRA, for this fix.

Filters/Search Requests can be modified by URL Hacking

Severity

Atlassian rates this vulnerability as **MODERATE**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and addressed a security flaw which may affect JIRA instances in a public environment. This flaw means that issue filters can be modified by hacking the URL, regardless of permissions on the filter.

Atlassian recommends that you upgrade to JIRA 3.13 to fix the vulnerability described below.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade.

Vulnerability

Users can run an issue filter, which they do not have access to, by entering the appropriate URL (although the filter will not return any issues that the user does not have permission to see). By the same means, users can edit a filter, rename a filter and access share and column selection. Filter deletion cannot be actioned purely by the URL, as it requires interaction with the user interface (which enforces permissions).

Fix

The fix is to revise the issue filter functionality as part of the Shareable Filters feature, so that URL hacks are no longer valid.

This issue has been fixed in JIRA 3.13 only. There are no patches available for previous versions of JIRA, for this fix.

'Manage Project Role Membership for Project' page can be viewed publicly

Severity

Atlassian rates this vulnerability as **LOW**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and addressed a security flaw which may affect JIRA instances in a public environment. This flaw means that the 'Manage Project Role Membership for Project' page can be viewed by users who are not logged in. Users cannot view any project role members or modify project roles.

Atlassian recommends that you upgrade to JIRA 3.13 to fix the vulnerability described below.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade.

Vulnerability

Users, who are not logged in, can manually enter the URL for the 'Manage Project Role Membership for Project' to access the page. Project role members will not be visible, nor will the user be able to modify project roles. The only new information available to the user will be the project name.

Fix

The fix is to prompt the user with the appropriate page for unauthorised access, if they are not logged in.

This issue has been fixed in JIRA 3.13 only. There are no patches available for previous versions of JIRA, for this fix.

Please let us know what you think of the format of this security advisory and the information we have provided.

JIRA Security Advisory 2008-02-21

In this advisory:

- Security vulnerabilities
  - XSS vulnerability in Issue Actions
- Available JIRA Patches
  - JIRA 3.12.1
  - JIRA 3.11
  - JIRA 3.10.2

Security vulnerabilities

XSS vulnerability in Issue Actions

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw is an XSS (cross-site scripting) vulnerability in JIRA's '**Saved Filter**', '**Filter Statistics**', '**Project Statistics**' and '**2D Filter Statistics**' portlets. This potentially allows a malicious user (hacker) to create a shared filter with special JavaScript in the name, and then create a link to run the vulnerable portlets using the shared filter. If this link was sent to a user and clicked by the user, the special JavaScript would be executed in the user's session.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker could also gain control over the underlying system, based on the privileges of the user whose session cookie has been stolen, by using the jelly runner.
- The hacker's text and script might be displayed to other people viewing the JIRA Dashboard. This is potentially damaging to your company's reputation.

Atlassian recommends that you upgrade to JIRA 3.12.2, or download the patch for JIRA 3.12.1, 3.11 or 3.10.2, to fix the vulnerabilities described below.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

The '**Saved Filter**', '**Filter Statistics**', '**Project Statistics**' and '**2D Filter Statistics**' portlets are affected. The name of a shared filter is not HTML-escaped when the the portlet is viewed.

Fix

The fix is to escape the name of a shared filter when run by the '**Saved Filter**', '**Filter Statistics**', '**Project Statistics**' and '**2D Filter Statistics**' portlets, so that no content in the filter name is interpreted as HTML or CSS.

This issue has been fixed in JIRA 3.12.2. The fix is also provided as a patch for JIRA 3.12.1, 3.11 and 3.10.2. For more information, please see JRA-14277 and JRA-14357.

Available JIRA Patches

JIRA 3.12.1

The patches for JIRA 3.12.1 are available in the file jira_3_12_1_xss_patch.zip

Patch Zip File	jira_3_12_1_xss_patch.zip
Patch Instructions	jira_3_12_1_xss_patch_instructions.txt
Patch CheckSum	jira_3_12_1_xss_patch.zip.md5

JIRA 3.12.1 can also be fixed by upgrading to JIRA 3.12.2

JIRA 3.11

The patches for JIRA 3.11 are available in the file jira_3_11_xss_patch.zip

Patch Zip File	jira_3_11_xss_patch.zip
Patch Instructions	jira_3_11_xss_patch_instructions.txt
Patch CheckSum	jira_3_11_xss_patch.zip.md5

JIRA 3.10.2

The patches for JIRA 3.10 are available in the file jira_3_10_2_xss_patch.zip

Patch Zip File	jira_3_10_2_xss_patch.zip
Patch Instructions	jira_3_10_2_xss_patch_instructions.txt
Patch CheckSum	jira_3_10_2_xss_patch.zip.md5

Please let us know what you think of the format of this security advisory and the information we have provided.

JIRA Security Advisory 2007-12-24

In this advisory:

- Security vulnerabilities
  - XSS vulnerability in Issue Actions
  - Anyone can delete a filter which is shared with them
  - Default language setting can be changed by an unauthorised user
- Available JIRA Patches
  - JIRA 3.12
  - JIRA 3.11
  - JIRA 3.10.2

Security vulnerabilities

XSS vulnerability in Issue Actions

Severity

Atlassian rates this vulnerability as **HIGH**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw is an XSS (cross-site scripting) vulnerability in JIRA's issue actions, which potentially allows a malicious user (hacker) to insert their own HTML tags or script into an action.

- The hacker might take advantage of this flaw to steal other users' session cookies or other credentials, by sending the credentials back to the hacker's own web server.
- The hacker's text and script might be displayed to other people viewing the JIRA issue. This is potentially damaging to your company's reputation.

Atlassian recommends that you upgrade to JIRA 3.12.1, or download the patch for JIRA 3.11 or 3.10.2, to fix the vulnerabilities described below.

You can read more about XSS attacks at cgisecurity, CERT and other places on the web.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

All issue actions (e.g. 'Create issue') are affected. The problem is with `500page.jsp`. It does not HTML-escape the error messages it prints out.

Fix

The fix is to escape all of the error messages rendered on the 500 page, so that no user input, which is propagated to error messages, is interpreted as HTML or CSS.

This issue has been fixed in JIRA 3.12.1. The fix is also provided as a patch for JIRA 3.12, 3.11 and 3.10.2. For more information, please see JRA-14105.

Anyone can delete a filter which is shared with them

Severity

Atlassian rates this vulnerability as **LOW**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw allows users to delete filters which are shared with them, which is an inconvenience to the user who is the true owner of the filter.

Atlassian recommends that you upgrade to JIRA 3.12.1, or download the patch for JIRA 3.12, 3.11 or 3.10.2, to fix the vulnerabilities described below.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could instruct all users to share their filters with trusted groups only (i.e. instruct them not to use 'Global' sharing).

Vulnerability

When a user commences deleting one of their own filters, if they replace their filter ID with the ID of another user's filter which is shared with them, they can delete the other user's filter.

Fix

The fix is to check that the currently logged-in user is indeed the owner of the filter, before deleting a filter.

This issue has been fixed in JIRA 3.12.1. The fix is also provided as a patch for JIRA 3.12, 3.11 and 3.10.2. For more information, please see JRA-13999.

Default language setting can be changed by an unauthorised user

Severity

Atlassian rates this vulnerability as **LOW**, according to the scale published in the JIRA Security documentation. This scale allows us to rank a vulnerability as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a security flaw which may affect JIRA instances in a public environment. This flaw potentially allows a malicious user (hacker) to change the default language of your JIRA instance, which is potentially damaging to your company's reputation, and an inconvenience to users.

Atlassian recommends that you upgrade to JIRA 3.12.1, or download the patch for JIRA 3.11 or 3.10.2, to fix the vulnerabilities described below.

Risk Mitigation

If you judge it necessary, you can disable public access (i.e. anonymous access and public signup) to your JIRA system until you have applied the necessary patch or upgrade. For even tighter control, you could restrict JIRA access to trusted groups only.

Vulnerability

After a JIRA instance has been setup, the first page of the Setup Wizard can still be accessed by manually browsing to the URL.

Attempting to advance beyond this screen, or import data, correctly results in the "Already Setup" page being displayed. However, the default language for the JIRA instance can be modified without any security checks.

Fix

The fix is to check that JIRA has not already been setup, when a user attempts to access the any page of the Setup Wizard. Similar checks also occur when a user attempts direct access to the setup JSPs.

This issue has been fixed in JIRA 3.12.1. The fix is also provided as a patch for JIRA 3.11 and 3.10.2. For more information, please see JRA-14086.

Available JIRA Patches

JIRA 3.12

The patches for JIRA 3.12 are available in the file jira_3_12_xss_patch.zip

Patch Zip File	jira_3_12_xss_patch.zip
Patch Instructions	jira_3_12_xss_patch_instructions.txt
Patch CheckSum	jira_3_12_xss_patch.zip.md5

JIRA 3.12 can also be fixed by upgrading to JIRA 3.12.1

JIRA 3.11

The patches for JIRA 3.11 are available in the file jira_3_11_xss_patch.zip

Patch Zip File	jira_3_11_xss_patch.zip
Patch Instructions	jira_3_11_xss_patch_instructions.txt
Patch CheckSum	jira_3_11_xss_patch.zip.md5

JIRA 3.10.2

The patches for JIRA 3.10 are available in the file jira_3_10_2_xss_patch.zip

Patch Zip File	jira_3_10_2_xss_patch.zip
Patch Instructions	jira_3_10_2_xss_patch_instructions.txt
Patch CheckSum	jira_3_10_2_xss_patch.zip.md5

Please let us know what you think of the format of this security advisory and the information we have provided.

Securing JIRA with Apache

The following outlines some basic techniques to secure a JIRA instance using Apache. These instructions are basic to-do lists and should not be considered comprehensive. For more advanced security topics see the "Further Information" section below.

- Using Apache to Limit Access to the JIRA Administration Interface
- Using Fail2Ban to limit login attempts (JIRA 4.1 has login-rate limiting, but Fail2Ban can be useful for older versions and more advanced security setups.)

Further information

- Integrating JIRA with Apache

Using Apache to Limit Access to the JIRA Administration Interface

Limiting Administration to Specific IP Addresses

The JIRA administration interface is a critical part of the application; anyone with access to it can potentially compromise not only the JIRA instance but the entire machine. As well as limiting access to users who really need it, and using strong passwords, you should consider limiting access to it to certain machines on the network or internet. If you are using an Apache web server, this can be done with Apache's **Location** functionality as follows.

1. Create a file that defines permission settings

This file can be in the Apache configuration directory or in a system-wide directory. For this example we'll call it "sysadmin_ips_only.conf". This file should contain the following:

```
Order Deny,Allow
 Deny from All

 # Mark the Sysadmin's workstation
 Allow from 192.168.12.42
```

2. Add the file to your Virtual Host

In your Apache Virtual Host, add the following lines to restrict the administration actions to the Systems Administrator:

```


<LocationMatch Administrators.jspa>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteAttachment>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AcknowledgeTask>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ActivateWorkflow>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ActivateWorkflowStep2>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddIssueSecurity>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddIssueSecurityScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddLevel>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddNotification>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddNotificationScheme>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddPermission>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddPermissionScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddPopMailServer>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddProject>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddProjectCategory>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddRepository>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddSmtpMailServer>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddUser>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowSchemeEntity>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowTransition>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowTransitionCondition>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowTransitionConditionParams>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowTransitionFunctionParams>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowTransitionPostFunction>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowTransitionValidator>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AddWorkflowTransitionValidatorParams>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AssociateFieldToScreens>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AssociateIssueTypeSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch AssociateIssueTypeSchemesWithDefault>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch BugzillaImport>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch BulkEditUserGroups>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CloneWorkflow>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureCache>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureCsvMapping>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureCustomField>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureFieldLayout>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureFieldLayoutScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureFieldScreen>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureFieldScreenScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureFogBugzMapping>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureIssueTypeScreenScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureLogging>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ConfigureOptionSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CopyFieldLayout>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CopyFieldLayoutScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CopyIssueSecurityScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CopyNotificationScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CopyPermissionScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CopyWorkflowScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CreateCustomField>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CreateDraftWorkflow>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CsvImporter>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch CurrentUsersList>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteCustomField>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteGroup>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteIssueSecurity>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteIssueSecurityLevel>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteIssueSecurityScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteIssueType>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteLinkType>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteMailServer>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteNotification>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteNotificationScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteOptionScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeletePermission>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeletePermissionScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeletePriority>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteProject>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteProjectCategory>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteProjectRole>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteRepository>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteResolution>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteStatus>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteSubTaskIssueType>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteTrustedApplication>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteUser>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteUserProperty>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteWorkflowScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteWorkflowSchemeEntity>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteWorkflowStep>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteWorkflowTransitionCondition>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteWorkflowTransitionPostFunction>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteWorkflowTransitions>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DeleteWorkflowTransitionValidator>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch DisableSubTasks>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditAnnouncementBanner>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditApplicationProperties>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditAttachmentSettings>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditBasicConfig>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditCustomField>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditCustomFieldDefaults>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditCustomFieldOptions>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditDefaultFieldLayoutItem>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldLayout>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldLayoutItem>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldLayoutItemRenderer>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldLayoutItemRendererConfirmation>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldLayoutScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldScreen>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldScreenScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditFieldScreenSchemeItem>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditIssueSecurities>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditIssueSecurityScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditIssueType>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditIssueTypeScreenScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditLinkType>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditListener>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditLookAndFeel>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditNotifications>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditNotificationScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditPermissions>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditPermissionScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditPriority>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditProjectCategory>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditProjectRole>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditResolution>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditService>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditStatus>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditSubTaskIssueTypes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditTrustedApplication>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditUser>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditUserDefaultSettings>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditUserGroups>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditUserProjectRoles>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditUserProperties>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditUserProperty>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflow>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflowScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflowSchemeEntities>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflowStep>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflowTransition>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflowTransitionConditionParams>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflowTransitionPostFunctionParams>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EditWorkflowTransitionValidatorParams>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch EnterpriseSelectProjectRepository>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ExternalImport>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch FogBugzImport>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch GlobalPermissions>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch GroupBrowser>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ImportWorkflowFromXml>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch IndexAdmin>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch IndexOptimize>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch IntegrityChecker>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch JellyRunner>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch JiraSupportRequest>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch LDAPConfigurer>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ListEventTypes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ListWorkflows>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch MailQueueAdmin>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch MakeDefaultLevel>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ManageConfiguration>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ManageConfigurationScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ManageIssueTypeSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ManageSubTasks>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch MantisImport>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch MigrateIssueTypes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectEmail>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportBackupOverviewProgress>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportMappingProgress>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportMissingMandatoryUsersCannotCreate>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportMissingMandatoryUsersExtMgmt>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportMissingOptionalUsersCannotCreate>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportMissingOptionalUsersExtMgmt>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportMissingUsersAutoCreate>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportProgress>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportResults>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportSelectBackup>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportSelectProject>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ProjectImportSummary>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch PublishDraftWorkflow>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch RepositoryTest>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ResetFailedLoginCount>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchedulerAdmin>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeComparisonPicker>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeComparisonTool>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeGroupToRoleMapper>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeGroupToRoleResult>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeGroupToRoleTransformer>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeMerge>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeMergePreview>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeMergeResult>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemePicker>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemePurgeToolPreview>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemePurgeToolResults>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemePurgeTypePicker>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeTools>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SchemeTypePicker>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectFieldLayoutScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectIssueTypeSchemeForProject>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectIssueTypeScreenScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectCategory>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectIssueSecurityScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectPermissionScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectRepository>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectSecuritySchemeStep2>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectWorkflowScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectWorkflowSchemeStep2>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectProjectWorkflowSchemeStep3>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SelectScreenScheme>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SendBulkMail>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SendTestMail>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ServiceExecutor>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SetGlobalEmailPreference>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch SetPassword>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch TaskAdmin>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch TimeTrackingAdmin>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch TrackbackAdmin>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch UpdatePopMailServer>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch UpdateRepository>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch UpdateSmtpMailServer>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch UserBrowser>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewApplicationProperties>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewAttachmentSettings>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewCustomFields>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewDefaultProjectRoleActors>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewFieldLayouts>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewFieldLayoutSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewFieldScreens>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewFieldScreenSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewGroup>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewIssueColumns>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewIssueFields>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewIssueSecuritySchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewIssueTypes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewIssueTypeScreenSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewLicense>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewLinkTypes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewListeners>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewLogging>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewLookAndFeel>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewMemoryInfo>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewNotificationSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewPermissionSchemes>
```

```
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewPlugins>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewPriorities>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewProjectCategories>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewProjectRoles>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewProjectRoleUsage>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewResolutions>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewServices>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewStatuses>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewSystemInfo>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewTranslations>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewTrustedApplications>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewUpgradeHistory>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewUser>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewUserDefaultSettings>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewUserProjectRoles>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowSchemes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowStep>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowStepMetaAttributes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowSteps>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowTransition>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowTransitionConditionalResult>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowTransitionMetaAttributes>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch ViewWorkflowXml>
  Include sysadmin_ips_only.conf
</LocationMatch>
<LocationMatch XmlBackup>
  Include sysadmin_ips_only.conf
</LocationMatch>
```

```
<LocationMatch XmlRestore>
  Include sysadmin_ips_only.conf
</LocationMatch>
```

Using Fail2Ban to limit login attempts

JIRA 4.1 includes a rate-limiting mechanism, but older versions and other applications such as Confluence need external help from a tool such as Fail2Ban.

What is Fail2Ban?

We need a means of defending sites against brute-force login attempts. Fail2Ban is a Python application which trails logfiles, looks for regular expressions and works with Shorewall (or directly with iptables) to apply temporary blacklists against addresses that match a pattern too often. This can be used to limit the rate at which a given machine hits login URLs for Confluence.

Prerequisites

- Requires Python 2.4 or higher to be installed
- Needs a specific file to follow, which means your Apache instance needs to log your Confluence access to a known logfile. You **should adjust the configuration below** appropriately.

How to set it up

This list is a skeletal version of the instructions

- There's an RPM available for RHEL on the download page, but you can also download the source and set it up manually
- Its configuration files go into `/etc/fail2ban`
- The generic, default configuration goes into `.conf` files (`fail2ban.conf` and `jail.conf`). Don't change these, as it makes upgrading difficult.
- Overrides to the generic configuration go into `.local` files corresponding to the `.conf` files. These only need to contain the specific settings you want overridden, which helps maintainability.
- Filters go into `filter.d` — this is where you define regexps, each going into its own file
- Actions go into `action.d` — you probably won't need to add one, but it's handy to know what's available
- "jails" are a configuration unit that specify one regexp to check, and one or more actions to trigger when the threshold is reached, plus the threshold settings (e.g. more than 3 matches in 60 seconds causes that address to be blocked for 600 seconds)
- Jails are defined in `jail.conf` and `jail.local`. Don't forget the `enabled` setting for each one — it can be as bad to have the wrong ones enabled as to have the right ones disabled.

Running Fail2Ban

- Use `/etc/init.d/fail2ban {start|stop|status}` for the obvious operations
- Use `fail2ban-client -d` to get it to dump its current configuration to STDOUT. Very useful for troubleshooting.
- Mind the CPU usage; it can soak up resources pretty quickly on a busy site, even with simple regexp
- It can log either to syslog or a file, whichever suits your needs better

Common Configuration

jail.local

```
# The DEFAULT allows a global definition of the options. They can be override
# in each jail afterwards.

[DEFAULT]

# "ignoreip" can be an IP address, a CIDR mask or a DNS host. Fail2ban will not
# ban a host which matches an address in this list. Several addresses can be
# defined using space separator.
# ignoreip = <space-separated list of IPs>

# "bantime" is the number of seconds that a host is banned.
bantime  = 600

# A host is banned if it has generated "maxretry" during the last "findtime"
# seconds.
findtime  = 60

# "maxretry" is the number of failures before a host get banned.
maxretry = 3


[ssh-iptables]

enabled  = false


[apache-shorewall]

enabled  = true
filter   = cac-login
action   = shorewall
logpath = /var/log/httpd/confluence-access.log
bantime = 600
maxretry = 3
findtime = 60
backend = polling
```

Configuring for Confluence

The following is an example only, and you should adjust it for your site.

filter.d/confluence-login.conf

```
[Definition]

failregex = <HOST>.*"GET /login.action

ignoreregex =
```

Configuring for JIRA

The following is an example only, and you should adjust it for your site.

filter.d/jira-login.conf

```
[Definition]

failregex = <HOST>.*"GET /login.jsp

ignoreregex =
```

Tomcat security best practices

The following outlines some basic techniques to secure an Apache Tomcat instance. This is a *basic must-do* list and should not be considered comprehensive. For more advanced security topics see the "Further Information" section below.

- User Permissions
  - Unix/Linux cheat-sheet
  - Windows cheat-sheet
- Tomcat Installation Permissions
  - Unix/Linux cheat-sheet
  - Windows cheat-sheet
- Web-Application Installation Permissions
  - Unix/Linux cheat-sheet
  - Windows cheat-sheet
- Further Information

User Permissions

Tomcat should never be run as a privileged user (root on UNIX or Admistrator or Local System on Windows).

Tomcat should be run as a low-privilege user. Ideally it should be run as a user created only for the purpose of running one application.

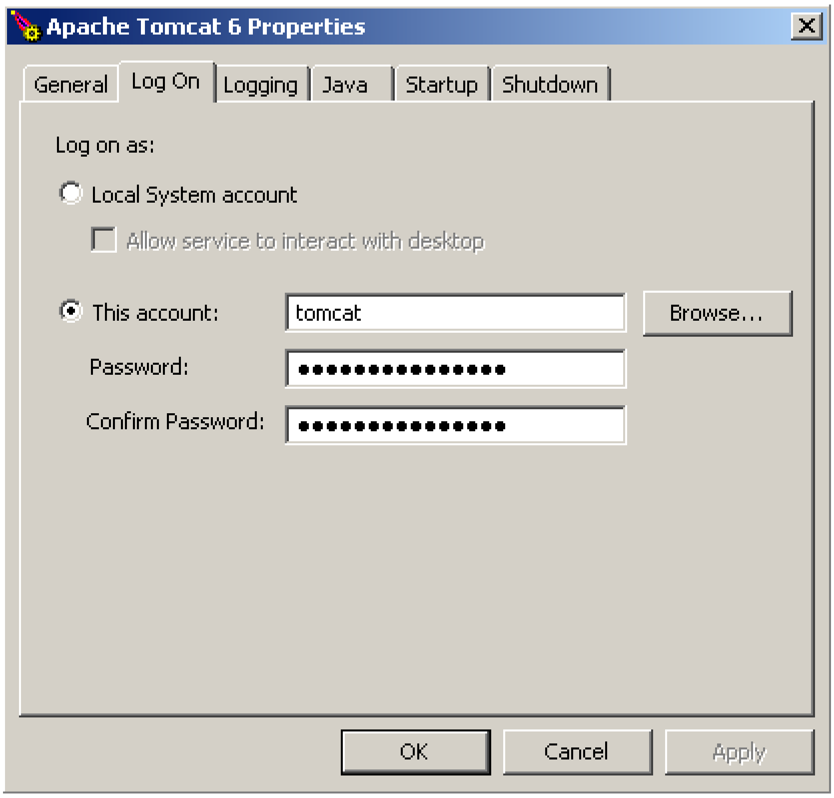
In practice this means you can't run it on port 80. If you need to run Tomcat on port 80, you should put it behind a webserver such as Apache; see Integrating JIRA with Apache for an example configuration.

Unix/Linux cheat-sheet

- Create a JIRA user:
  `sudo adduser jira-tomcat`
- Run Tomcat as a specific user:
  `sudo -u jira-tomcat ${CATALINA_HOME}/bin/catalina.sh run`

Windows cheat-sheet

- Create an unprivileged account (if your host is part of an Active Directory there may be already a template for service users). The user should have "Log on as a service" rights assigned to it.
- Make sure the Apache Tomcat service is set to run as that user. If Tomcat was installed using the JIRA Windows Installer, the system tray utility lets you set this via Configuration -> Log On:



Tomcat Installation Permissions

The Tomcat installation directory (sometimes referred to as CATALINA_HOME) should be installed as a user that is different to the one it will be run as. Under Linux, unpacking the Tomcat distribution as root is the simplest method of doing this.

Unfortunately, Tomcat does require write access to some directories in the distribution directory, but they should be enabled only as needed.

Tomcat ships with some default admin applications in its webapps directory. Unless you need these they should be disabled.

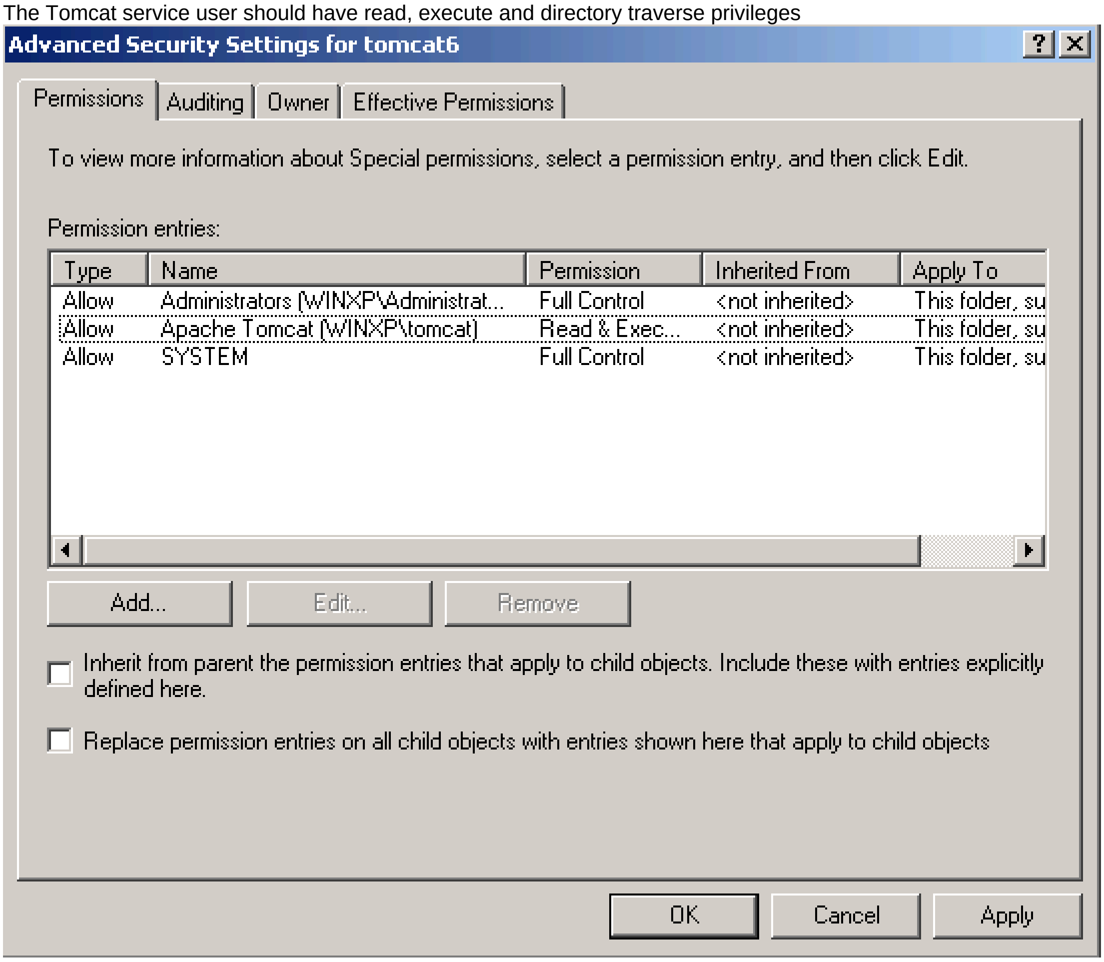
Unix/Linux cheat-sheet

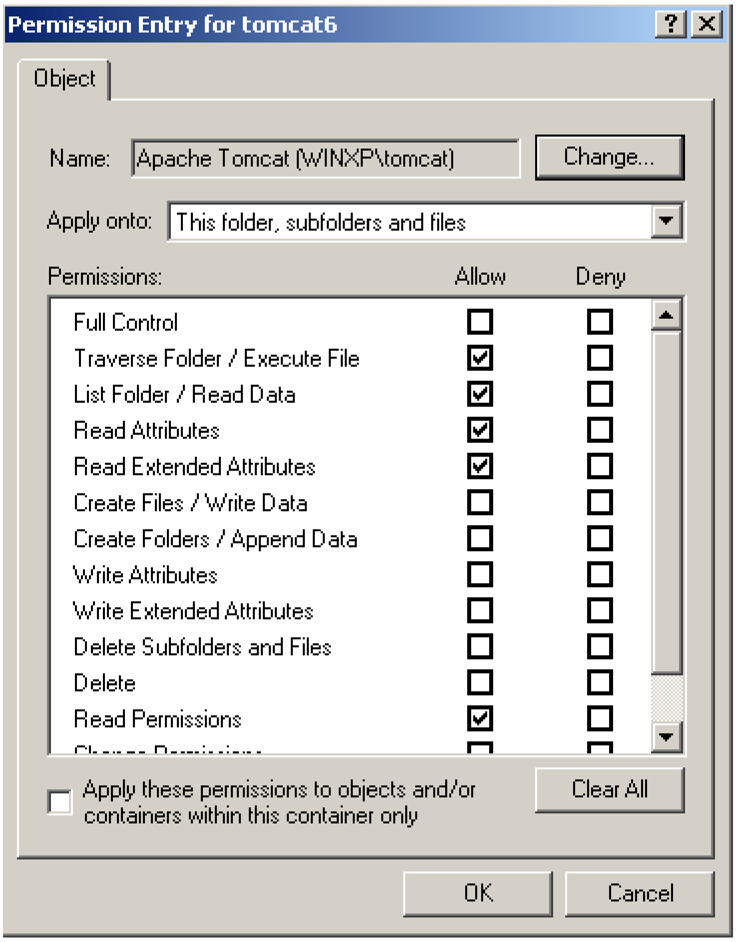
- Unpack Tomcat as root:
  `sudo tar xzvf apache-tomcat-6.0.20.tar.gz`
- Remove the default webapps:
  `sudo rm -rf apache-tomcat-6.0.20/webapps/*`
- Remove write permissions:
  `sudo chmod -R go-w apache-tomcat-6.0.20`
- Allow write on needed directories only:
  `cd apache-tomcat-6.0.20/; sudo chown -R jira-tomcat work/ temp/ logs/`

Windows cheat-sheet

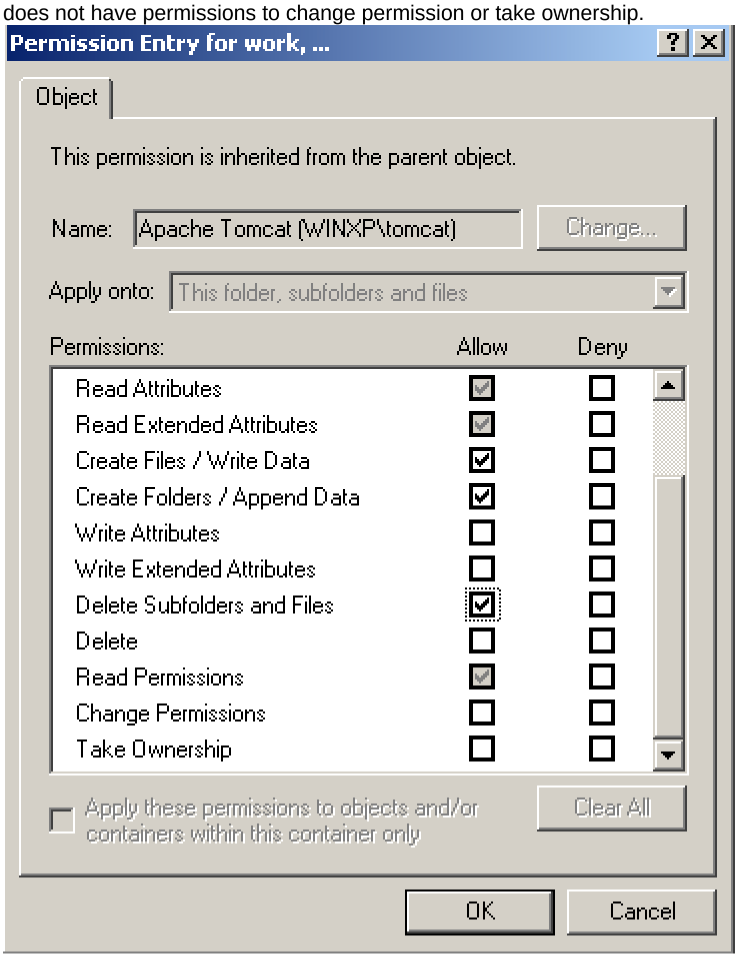
Note: If your host is part of a Domain/Active Directory, consult your Windows system administrator sysadmins to get the right permissions.

- Unpack and install Tomcat, and update the permissions on CATALINA_HOME to be writeable by Administrators and System only. The Tomcat service user should have read, execute and directory traverse privileges





- Under CATALINA_HOME, the `work`, `temp` and `logs` directories need write and delete access for the Tomcat user. Make sure it does not have permissions to change permission or take ownership.



Web-Application Installation Permissions

The directory you unpack the application WAR into should not be writable by the Tomcat user (i.e. `jira-tomcat` in the examples above). Again, the simplest method to do this is to unpack the WAR as root.

Unix/Linux cheat-sheet

- Unpack the war as root:
  `sudo unzip confluence-webapp-3.2.war`

Windows cheat-sheet

- Unpack the war as your user and confirm that the Tomcat user does not have write access to the webapp.

Further Information

- Securing Tomcat at OWASP.
- Critical Steps to Secure Tomcat on Windows NT/2K/XP
- Tomcat Security FAQ

Important Directories and Files

On this page:

- JIRA Installation Directory
  - Important Files and Directories
    - `atlassian-jira/WEB-INF/classes/jira-application.properties`
    - `atlassian-jira/WEB-INF/classes/osuser.xml`
    - `atlassian-jira/WEB-INF/lib/`
    - `atlassian-jira/WEB-INF/classes/log4j.properties`
    - `conf/server.xml`
    - Memory Settings
- JIRA Home Directory
  - Important Directories
    - `data`
    - `export`
    - `plugins`
    - `caches`
    - `log`
    - `tmp`

JIRA Installation Directory

The 'JIRA installation directory' is the directory into which the JIRA application files and libraries have been unpacked (unzipped) when JIRA was installed. JIRA does not modify or store any data in this directory.

Important Files and Directories

The directories/files described below are found under the different sub-directories of the JIRA Installation directory, depending on whether you have installed JIRA Standalone or JIRA EAR/WAR. Please substitute the following directories for the **<install-dir>** placeholder below, as follows:

- **JIRA Standalone** — `atlassian-jira` subdirectory
- **JIRA EAR/WAR** — webapp subdirectory (please note, if you want to edit any files in the webapp directory you will need to copy them to the `edit-webapp` subdirectory and edit the copies as described in JIRA WAR-EAR Configuration Overview. Copies of the `jira-application.properties` and `entityengine.xml` file are already available in the `edit-webapp` sub-directory).

<install-dir>/WEB-INF/classes/jira-application.properties

This file tells JIRA where to find the JIRA Home Directory, as well as storing many other configuration settings . This file is modified by the administrator when Installing JIRA Standalone (not using Windows installer) or Installing JIRA WAR-EAR.

<install-dir>/WEB-INF/classes/osuser.xml

This file is modified when connecting JIRA to an external user management system such as an LDAP server or Atlassian's Crowd. For more information, refer to User and Group Management.

<install-dir>/WEB-INF/lib/

This is the directory where plugins built on Atlassian's Plugin Framework 1 (i.e. 'Plugins 1' plugins) are stored. If you are installing a new 'Plugins 1' plugin, you will need to deploy it into this directory.
'Plugins 2' plugins should be stored in the JIRA Home Directory.

<install-dir>/`WEB-INF/classes/log4j.properties`

JIRA's logging configuration file. See Logging and Profiling.

The actual log files generated by JIRA can be found in the following locations:

- **JIRA application log** — `bin/atlassian-jira.log`
- **Application server log** — generally the application server log file can be found under the `logs` directory. However, this can vary depending on the application server you are running. Please see Where are the application server logs? for further details.

<install-dir>/`WEB-INF/classes/entityengine.xml`

This file configures the OFBiz Entity Engine which JIRA uses to store persist data in a datasource. See Configuring the Entity Engine for JIRA.

> The sub-directories/files described below are found under the root of the JIRA Installation directory.

`conf/server.xml`

This file is used for JIRA SSL configuration. See Running JIRA over SSL or HTTPS.

Memory Settings

The file used to edit JAVA_OPTS memory settings will depend on the method used to install JIRA, as well as the operating system used for your installation.

For example, if you are running JIRA on Tomcat in Windows (manual startup), you would update the following file:
`bin\setenv.bat`
whereas for JIRA on Tomcat in Unix, you would update this file:
`bin/setenv.sh`

See Increasing JIRA Memory for further details.

JIRA Home Directory

The 'JIRA home directory' contains key data that help define how JIRA works. This document outlines the purpose of the various subdirectories and files within the JIRA home directory. (For information on specifying the location of the JIRA home directory, please see Setting your JIRA Home Directory .)

Tip: *Another term for 'home directory' would be 'data directory'.*

Important Subdirectories

`data`

This directory contains application data for your JIRA instance, including attachments (for every version of each attachment stored in JIRA).

`export`

JIRA will place its automated backup archives into this directory.

`log`

JIRA will place its logs into this directory. (Note: if the JIRA home directory is not configured, then the logs will be placed into the current working directory instead).

The logs will only start showing up once the first log message is written to them. For example, the internal access log will not be created util JIRA starts writing to it.

You can change the location of the log file using `log4j.properties` as described in the documentation on Logging and Profiling.

`plugins`

This is the directory where plugins built on Atlassian's Plugin Framework 2 (i.e. 'Plugins 2' plugins) are stored. If you are installing a new 'Plugins 2' plugin, you will need to deploy it into this directory under the `installed-plugins` sub-directory.

'Plugins 1' plugins should be stored in the JIRA Installation Directory.

This directory is created on JIRA startup, if it does not exist already.

caches

This is where JIRA stores caches including:

- Lucene indexes - see [JIRAKB:Indexing in JIRA]
- OSGi framework caches

These files are vital for JIRA performance and should not be modified or removed externally while JIRA is running.

Note:

See Search Indexing for further details.

tmp

Any temporary content created for various runtime functions such as exporting, importing, file upload and indexing is stored under this directory.

You can remove files from this directory while JIRA is running, but we recommend that you shut down JIRA first before altering the contents of this directory.

Related Topics

- How do I unlock my JIRA home directory?

JIRA Home Directory

The 'JIRA home directory' contains key data that help define how JIRA works. This document outlines the purpose of the various subdirectories and files within the JIRA home directory. (For information on specifying the location of the JIRA home directory, please see Setting your JIRA Home Directory .)

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Memory Settings

The file used to edit JAVA_OPTS memory settings will depend on the method used to install JIRA, as well as the operating system used for your installation.

For example, if you are running JIRA on Tomcat in Windows (manual startup), you would update the following file:
`bin\setenv.bat`
whereas for JIRA on Tomcat in Unix, you would update this file:
`bin/setenv.sh`

See Increasing JIRA Memory for further details.

Setting your JIRA Home Directory

The JIRA Home Directory contains key data that help define how JIRA works. You must have a JIRA home directory specified for your JIRA instance before you can start it. This document describes how to specify the location of the JIRA home directory for your JIRA instance.

One JIRA home per JIRA instance
You can only have one JIRA home per JIRA instance. If you have multiple JIRA instances, you will need to set up a JIRA home for each instance. A lock is placed on the root level of a JIRA home when created, to ensure that it is only used by one JIRA instance. If you have accidentally **locked your JIRA home directory**, you can unlock it by following the instructions in this FAQ.

You only need to specify the location of the root directory for your JIRA home. The sub-directories will be created automatically when JIRA is started or when you use a function in JIRA that requires a particular sub-directory.

How do I set my JIRA home?

The recommended way to specify the location of your JIRA Home Directory is to:

- Edit the `jira-application.properties` file (see the JIRA Installation Directory page to find where this file is located), add a 'jira.home' property and set it to your desired location for the JIRA home directory. Please use forward-slashes ("/"), not back-slashes ("\").

Note:

- If you are using the Windows installer, you don't need to do this as you will be prompted to specify the location for your JIRA home during installation.
- If you are using JIRA Standalone, you don't need to do this — please see the JIRA Configuration Tool instead.
- If you are using JIRA WAR-EAR, you need to set your JIRA home *before* you build JIRA.

Alternatively, you can specify the location of your JIRA Home Directory as follows:

- Add a web context property called '`jira.home`' — this property is set in different files depending on your application server. For example, for Tomcat (and therefore for JIRA Standalone), you will need to configure the server.xml file:

  For other application servers you may need to configure the web.xml file, or set 'Context parameter' options on the deployment UI of the application server, etc. Note that If you have specified a JIRA home in `jira-application.properties` (ie. the recommended method), it will override your web context property.

What location should I specify for my JIRA home?

You can specify any location on a disk for your JIRA home directory. Please be sure to specify an absolute path.

Please note that you cannot use the same JIRA home directory for multiple instances of JIRA. We recommend that you do not specify your JIRA home directory to be inside your installation directory, to prevent information from being accidentally lost during major operations (e.g. backing up and restoring instances).

How do I change my JIRA home?

To change the location of your JIRA home directory,

1. Set your JIRA home to the new location, using your preferred method as described in *"How do I set my JIRA home?"* (above).
2. Restart JIRA.

How do I unlock my JIRA home directory?

If your JIRA home directory becomes locked, your JIRA instance will be prevented from running.

Your JIRA home directory can become locked if:

- You accidentally configure two JIRA instances to use the same directory
- Your JIRA instance terminates abnormally and fails to unlock the JIRA home directory
- You receive a `JIRALockedError`.

To **unlock your JIRA home directory**, follow the instructions below:

1. Verify that no running JIRA instances are configured to use the specified JIRA home. If there are running JIRA instances that are configured to use the specified JIRA home, shut them down and change the JIRA home directory to a different location.
2. Remove the file **.jira-home.lock**. This file is located in your JIRA home directory. To enable the viewing of Hidden files follow these steps:

- **Windows XP, Windows 2003, other Windows pre-7:**
    1. Minimize all programs so that you are at your desktop.
    2. Double-click on the My Computer icon.
    3. Select the 'Tools' menu and click 'Folder Options'.
    4. After the new window appears select the 'View' tab.
    5. Put a checkmark in the checkbox labelled 'Display the contents of system folders'.
    6. Under the 'Hidden files and folders' section select the radio button labelled 'Show hidden files and folders'.
    7. Remove the checkmark from the checkbox labelled 'Hide protected operating system files'.
    8. Press the 'Apply' button and then the 'OK' button and shutdown My Computer.
    9. Now your computer is configured to show all hidden files.
- **Windows 7:**
    1. Close all programs so that you are at your desktop.
    2. Select 'Control Panel' >> 'Appearance and Personalization' >> 'Folder Options' >> 'Show Hidden Files and Folders'.
    3. Press the 'Apply' button and then the 'OK' button.
    4. Now your computer is configured to show all hidden files.
- **Linux:**
    1. CD to the JIRA Home directory
    2. Run `ls -al`
    3. Run rm .jira-home.lock
- **Mac:**
    1. Open a Terminal window. The Terminal application can be found an `Applications >> Utilities`.
    2. CD to the JIRA Home directory.
    3. Run rm .jira-home.lock

When you're finished, restart JIRA.

Running JIRA in a Virtualised Environment

This page provides some performance data and observations on running JIRA with VMware. The information on this page is intended to help you decide whether or not to run JIRA using a VMware product. It does not contain detailed instructions on how to set this up (please see the VMware product documentation instead). We currently only provide information for VMware as it is the most requested platform from our customers.   At this time, we do not have plans to officially support other virtualised environments.

On this page:

- Summary
- Recommendations
    - General
    - VMware ESX 3.5
    - VMware ESX 4i
- Performance Testing Setup
    - Server Configuration
    - Installed Software
    - Testing Tool
- Test Results
    - Low-load JIRA
    - Medium-load JIRA

Summary

Unsurprisingly, JIRA is generally slower in a virtualised environment. As can be seen in the test results below, the amount by which JIRA slows down varies based on the workload.

Under low load there are several operations which are in fact faster under VMware. This is probably due to the 4CPU VM instance running on 8 real CPUs as opposed to there being only 4 real CPUs on the baseline machine.

Please note, no performance tuning was applied to VMware for these tests. It may be possible to improve JIRA performance by tuning VMWare, however this may cause other applications to run more slowly on the virtual environment. We recommend that you consult the VMware documentation before deciding whether to do this.

Recommendations

General

- If you are a running a **high-load** instance, your biggest performance gain will be to run the application and database on a real machine and not on virtual infrastructure.
- Under **high-load**, moving the database onto another machine will help.
- Always ensure that there are enough virtual CPUs and memory allocated to the virtual instance. This may not be possible under VMware ESX 3.5 due to limitations of 4 vCPUs per VM.
- Always ensure that there is enough CPU time and memory available on the physical host to service all VMs. Applications should not go into swap.
- Use modern CPUs with VT extensions — there is still a noticeable performance penalty for using a VM with these CPUs, but it will likely be much higher when using old CPUs.
- Carefully monitor your VMware hosts to ensure that there is no resource starvation.
- Review Timekeeping best practices for Linux guests as not having the correct kernel parameters can cause high CPU usage inside the guest

VMware ESX 3.5

- If possible, upgrade to VMware ESX 4i.
- Under **low-load**, using a non-virtualised database will generally result in better response times.

VMware ESX 4i

- Under **low-load**, keep the database inside the virtual machine if there is enough CPU time for both the database and application.
- Using VMware EX 4i and virtual machine version 7, you will be able to allocate up to 8 vCPUs to an instance.

Performance Testing Setup

Server Configuration

All testing was performed on the following hardware. In the case of virtual machines, one VM per machine was configured.

Platform	CPU	Real Ram	Disk	Virtualisation Software	Virtual machine version	Virtual CPU's	Virtual Ram
Dell R610	2 x Intel 'Nehalem' Xeon E5520 (Quad Core) [1]	32Gb (8x 4Gb DDR3)	2 x 15K 146Gb SAS, Raid 1 [4,5]	VMware ESX 3.5	4	4	32Gb
Dell R610	2 x Intel 'Nehalem' Xeon E5520 (Quad Core) [1]	32Gb (8x 4Gb DDR3)	2 x 15K 146Gb SAS, Raid 1 [4,5]	VMware ESXi 4	7	4	32Gb
Dell R610	2 x Intel 'Nehalem' Xeon E5520 (Quad Core) [2,3]	32Gb (8x 4Gb DDR3)	2 x 15K 146Gb SAS, Raid 1 [5]	N/A	N/A	N/A	N/A

Notes:

1. *VT extensions were enabled in the BIOS on the machines running VMWare.*
2. *VT extensions were disabled in the BIOS on the machines not running VMWare, as per Dell best practices.*
3. *In order to limit the CPUs in the baseline test to match the number in VMWare, the kernel boot parameter `maxcpus=4` was added to the startup.*
4. *The full disk was allocated to VMware.*
5. *The filesystem used in all machines was EXT3.*

Installed Software

Each server was set up with identical software, as follows:

Atlassian Product	JIRA 4.0.0-Beta2
Database	MySQL 5.0.45-7
Application Server	Tomcat 5.5.27
Java	Java(TM) SE (build 1.6.0_07-b06), Java HotSpot(TM) 64-Bit Server VM (build 10.0-b23, mixed mode)

Operating System	Redhat Enterprise Linux 5.3 (Tikanga) 64bit (Kernel 2.6.18-128.2.1.el5). The file system used for all tests was EXT3 with the default options.
	The following tuning was applied to the operating system, in order to allow for more memory usage by the database server and better network throughput:
	`net.ipv4.ip_forward = 0`
	`net.ipv4.conf.default.rp_filter = 1`
	`net.ipv4.conf.default.accept_source_route = 0`
	`kernel.sysrq = 0`
	`kernel.core_uses_pid = 1`
	`net.ipv4.tcp_syncookies = 1`
	`kernel.msgmnb = 65536`
	`kernel.msgmax = 65536`
	`kernel.shmmax = 1310720000`
	`kernel.shmall = 4294967296`
	`net.core.rmem_max = 16777216`
	`net.core.wmem_max = 16777216`
	`net.ipv4.tcp_rmem = 4096 87380 16777216`
	`net.ipv4.tcp_wmem = 4098 65536 16777216`
	`net.ipv4.tcp_no_metrics_save = 1`
	`net.ipv4.tcp_moderate_rcvbuf = 1`
	`net.core.netdev_max_backlog = 2500`

Testing Tool

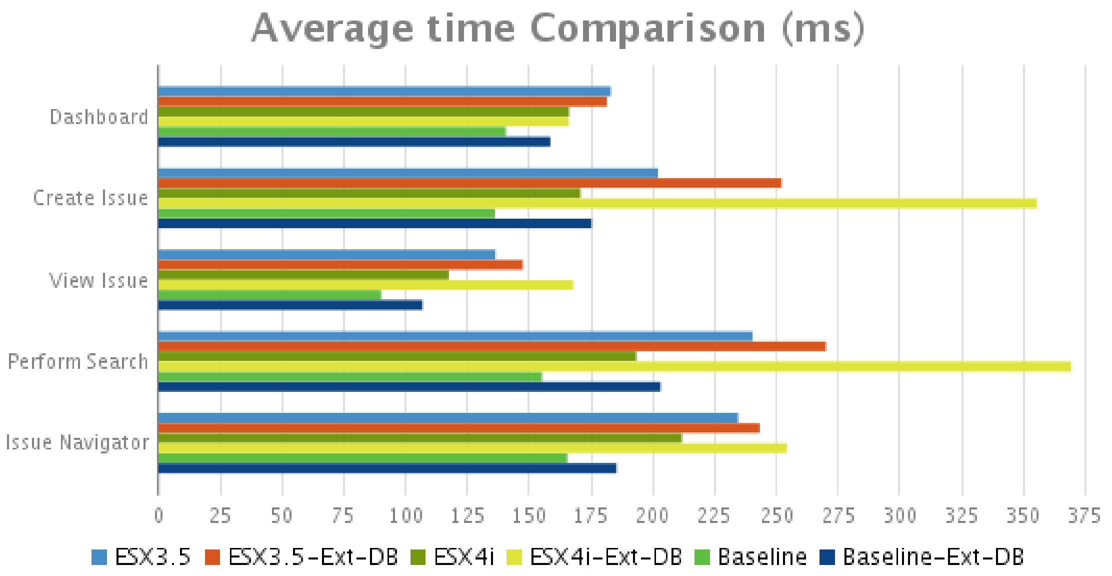
Performance tests were conducted with **Apache Jakarta JMeter 2.3.4** using the standard JIRA performance tests.

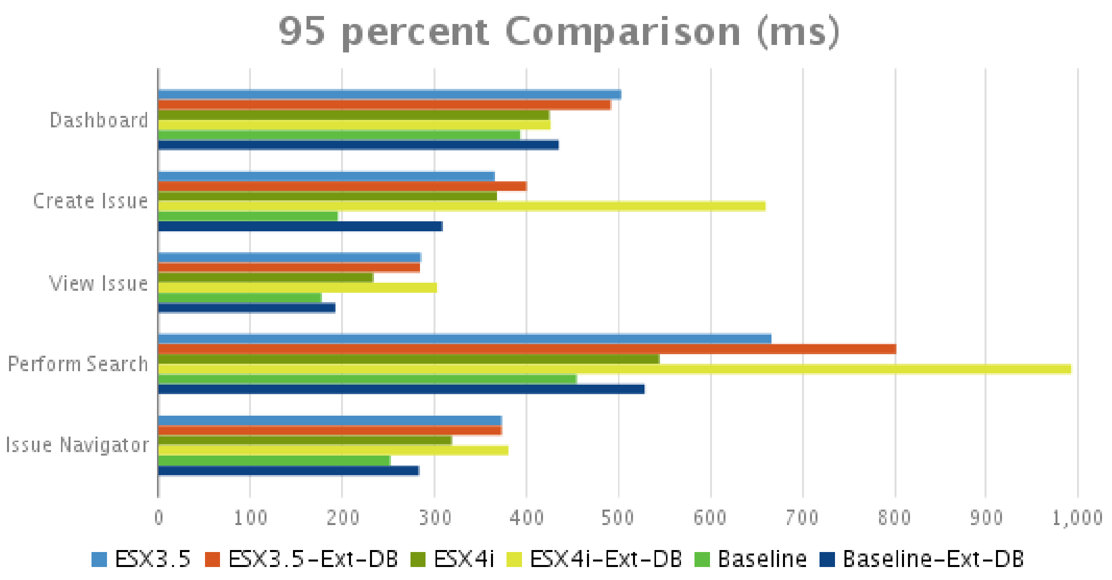
Test Results

The following tests were performed for each application. In each case, the test was performed with a database local to the host instance (i.e. in the same operating system image) and also with the database residing on a separate, non-virtualised physical server of the same specifications as above.

Low-load JIRA

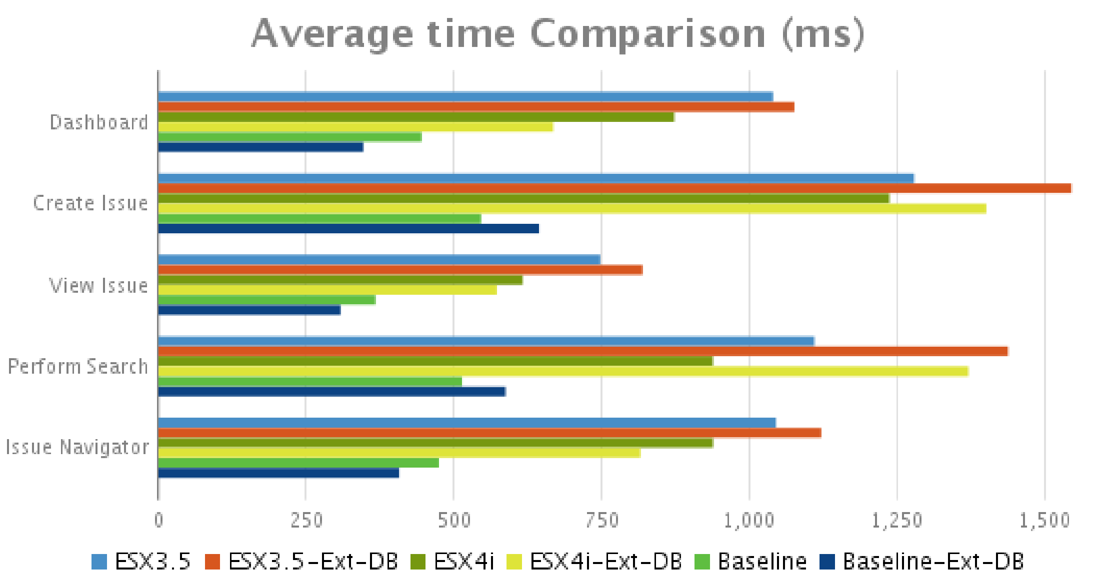
This test performs around **16 requests/second** on the JIRA instance. This is not enough to saturate the host CPU time and during the test there is around **60-80% idle time**.

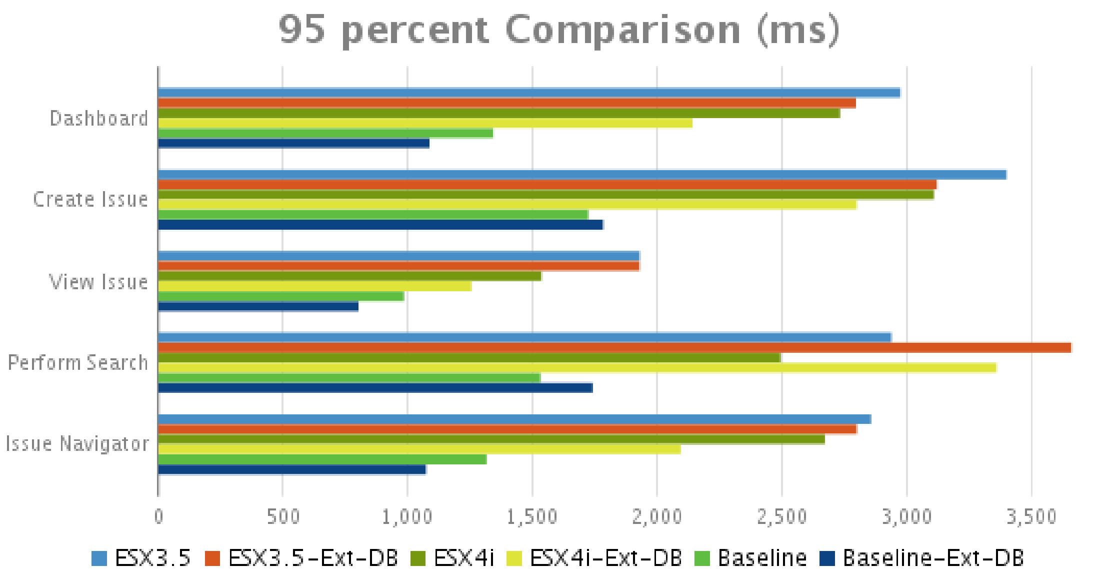




Medium-load JIRA

This test tries to perform double the requests/second of the low load test (i.e. approximately **32 requests/second**) on the JIRA instance. This is enough load to saturate the available CPU time on a 4 CPU machine.





Deployment Planning Activity

Planning for rolling out our products or capacity planning for large instances is better suited for service offerings than Atlassian Support. We will refer this kind of activity to our partner network. This includes establishing specific upgrade and deployment plans for existing installations.

We suggest customers run the Performance Testing Scripts available for products to see how well their software instance performs given the hardware, configuration in use and expected workload. Using this data, the instance can then be tuned for performance should there be any issues encountered.

It is also recommended that you closely monitor your production instance to ensure that performance does not degrade as your instance grows in size.

Atlassian does not have provide benchmarking data at this time.

Should you require any assistance, it is best to take advantage of our public forums or contact our partners.

JIRA Resources

Resources for Evaluators

- Free Trial
- Feature Tour
- JIRA Sample Files
- JIRA FAQ

Resources for Administrators

- JIRA Knowledge Base
- Tips of the Trade
- Tips via Twitter
- Guide to Installing an Atlassian Integrated Suite
- The big list of Atlassian gadgets

Downloadable Documentation

- JIRA documentation in PDF, HTML or XML formats
- Setting Up Local Online JIRA Documentation

Plugins

- JIRA Extensions & Plugins Library
- Atlassian Plugin Exchange

IDE Connectors

- Use the Atlassian Connector for Eclipse or the Atlassian Connector for IntelliJ IDEA to work with your JIRA issues right there in your development environment. Do you use Bamboo, Crucible or FishEye too? With the connector you can manage your builds and code reviews within your IDE, or move quickly between the IDE and a FishEye view of your source repository. **Hint:** The Atlassian IDE Connectors are free.

Support

- Atlassian Support
- Support Policies

Training

- Atlassian Training

Forums

- JIRA Announcements | subscribe
- JIRA General Forum | subscribe
- JIRA Developers Forum | subscribe

Feature Requests

- Issue Tracker and Feature Requests for JIRA

JIRA Tutorial Videos

This page contains tutorial videos on a number of basic JIRA functions. The videos are intended to **supplement, not replace,** the online JIRA documentation.

> **Tutorial Videos — Version and Edition**
> The JIRA tutorial videos are not updated with every JIRA release and edition. Please note the **JIRA version** and **JIRA edition** of the tutorial video before watching.
>
> While there are commonalities between different versions and different editions, you may find that the example scenarios in the tutorials differ from your JIRA instance, if you are using a different version or edition.

The videos are generally recorded in Quicktime (.mov) format. If any tutorials are available in other formats, they will be listed below.

On this page:

- Installing JIRA Standalone (Windows)
- Installing JIRA Standalone (Mac)
- Adding a Project
- Adding a Custom Field
- Creating Comments and Issues via Email
- Issue Security Scheme Overview
- Permission Scheme Overview
- Mastering JIRA Workflow
- Workflow Scheme Overview
- Creating SLA Issue Filters

Installing JIRA Standalone (Windows)

JIRA Version	**4.1**
Video	 *(click image to watch video)*
Related Documentation	* Installing JIRA Standalone

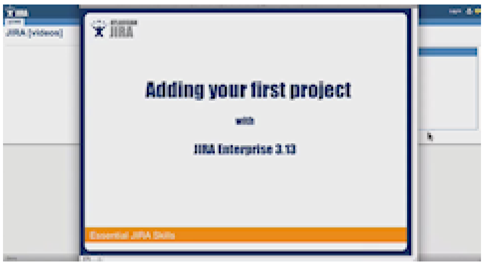
*Please note the **version** and **edition** of the tutorial video before watching.*

Installing JIRA Standalone (Mac)

JIRA Version	**4.1**
Video	 *(click image to watch video)*
Related Documentation	* Installing JIRA Standalone

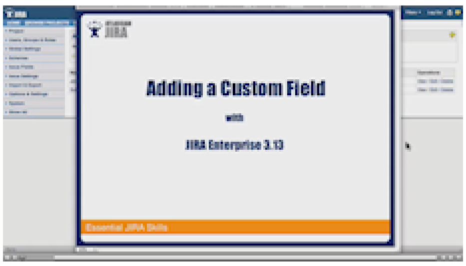
*Please note the **version** and **edition** of the tutorial video before watching.*

Adding a Project

JIRA Version	**3.13**
JIRA Edition	**Enterprise**
Video (.mov)	 *(click image to watch video)*
Related Documentation	* What is a Project? * Defining a Project

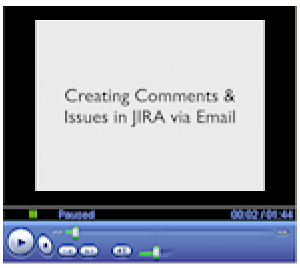
*Please note the **version** and **edition** of the tutorial video before watching.*

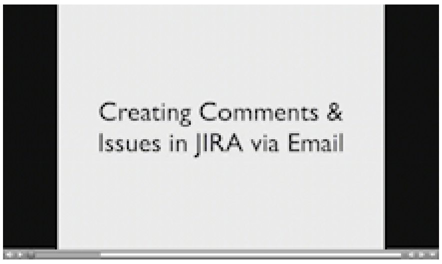
Adding a Custom Field

JIRA Version	**3.13**
JIRA Edition	**Enterprise**
Video (.mov)	 *(click image to watch video)*
Related Documentation	* Adding a Custom Field

*Please note the **version** and **edition** of the tutorial video before watching.*

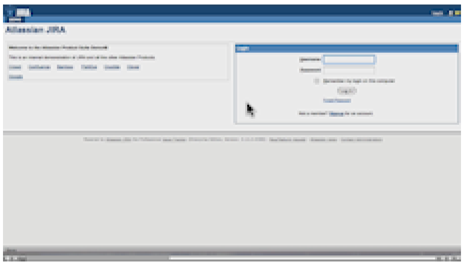
Creating Comments and Issues via Email

JIRA Version	**3.13**
JIRA Edition	**Enterprise**
Video (.avi)	 *(click image to watch video)*

Video (.m4v)	 *(click image to watch video)*
Related Documentation	* Creating Issues and Comments from Email

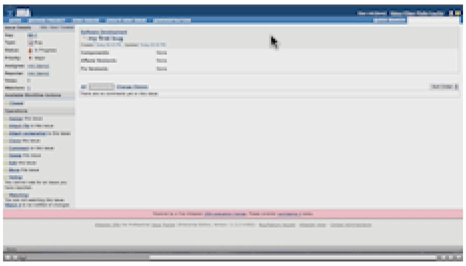
*Please note the **version** and **edition** of the tutorial video before watching.*

Issue Security Scheme Overview

JIRA Version	**3.13**
JIRA Edition	**Enterprise**
Video (.mov)	 *(click image to watch video)*
Related Documentation	* Configuring Issue Level Security

*Please note the **version** and **edition** of the tutorial video before watching.*

Permission Scheme Overview

JIRA Version	**3.13**
JIRA Edition	**Enterprise**
Video (.mov)	 *(click image to watch video)*
Related Documentation	* Managing Project Permissions

*Please note the **version** and **edition** of the tutorial video before watching.*

Mastering JIRA Workflow

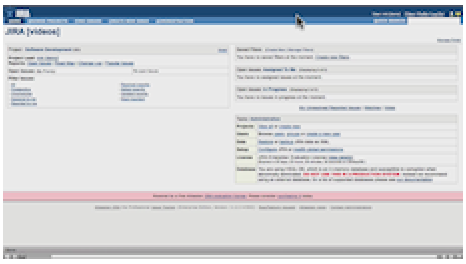
Christina Bang's talk at Atlassian Summit 2010.

JIRA Version	**4.1**

Video (.mp4)	 *(click image to go to video page)*
Related Documentation	* Configuring Workflow

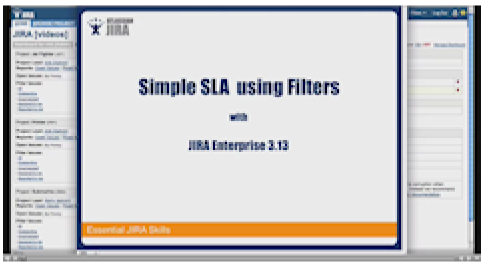
⚠ *Please note the **version** and **edition** of the tutorial video before watching.*

Workflow Scheme Overview

JIRA Version	**3.13**
JIRA Edition	**Enterprise**
Video (.mov)	 *(click image to watch video)*
Related Documentation	* Activating Workflow

⚠ *Please note the **version** and **edition** of the tutorial video before watching.*

Creating SLA Issue Filters

JIRA Version	**3.13**
JIRA Edition	**Enterprise**
Video (.mov)	 *(click image to watch video)*
Related Documentation	* Saving Searches ('Issue Filters') * JIRA as a Support System

⚠ *Please note the **version** and **edition** of the tutorial video before watching.*

Support Policies

Welcome to the support policies index page. Here, you'll find information about how Atlassian Support can help you and how to get in touch with our helpful support engineers. Please choose the relevant page below to find out more.

- Bug Fixing Policy

- How to Report a Security Issue
- New Features Policy
- Patch Policy
- Security Advisory Publishing Policy
- Security Patch Policy
- Severity Levels for Security Issues

To request support from Atlassian, please raise a support issue in our online support system. To do this, see Getting Help. Our friendly support engineers will get right back to you with an answer.

Bug Fixing Policy

Summary

- Atlassian Support will help with workarounds and bug reporting.
- Critical bugs will generally be fixed in the next maintenance release.
- Non critical bugs will be scheduled according to a variety of considerations.

Raising a Bug Report

Atlassian Support is eager and happy to help verify bugs — we take pride in it! Please open a support request in our support system providing as much information as possible about how to replicate the problem you are experiencing. We will replicate the bug to verify, then lodge the report for you. We'll also try to construct workarounds if they're possible.

Customers and plugin developers are also welcome to open bug reports on our issue tracking systems directly. Use http://jira.atlassian.com for the stand-alone products and http://studio.atlassian.com for JIRA Studio.

When raising a new bug, you should rate the priority of a bug according to our JIRA usage guidelines. Customers should watch a filed bug in order to receive e-mail notification when a "Fix Version" is scheduled for release.

How Atlassian Approaches Bug Fixing

Maintenance (bug fix) releases come out more frequently than major releases and attempt to target the most critical bugs affecting our customers. The notation for a maintenance release is the final number in the version (ie the 1 in 3.0.1).

If a bug is critical (production application down or major malfunction causing business revenue loss or high numbers of staff unable to perform their normal functions) then it will be fixed in the next maintenance release provided that:

- The fix is technically feasible (i.e. it doesn't require a major architectural change).
- It does not impact the quality or integrity of a product.

For non-critical bugs, the developer assigned to fixing bugs prioritises the non-critical bug according to these factors:

- How many of our supported configurations are affected by the problem.
- Whether there is an effective workaround or patch.
- How difficult the issue is to fix.
- Whether many bugs in one area can be fixed at one time.

The developers responsible for bug fixing also monitor comments on existing bugs and new bugs submitted in JIRA, so you can provide feedback in this way. We give high priority consideration to security issues.

When considering the priority of a non-critical bug we try to determine a 'value' score for a bug which takes into account the severity of the bug from the customer's perspective, how prevalent the bug is and whether roadmap features may render the bug obsolete. We combine this with a complexity score (i.e. how difficult the bug is). These two dimensions are used when developers self serve from the bug pile.

Further reading

See How to Get Legendary Support from Atlassian for more support-related information.

How to Report a Security Issue

Finding and Reporting a Security Vulnerability

If you find a security bug in the product, please open an issue on http://jira.atlassian.com in the relevant project.

- Set the priority of the bug to 'Blocker'.
- Provide as much information on reproducing the bug as possible.
- Set the security level of the bug to 'Developer and Reporters only'.

All communication about the vulnerability should be performed through JIRA, so that Atlassian can keep track of the issue and get a patch out as soon as possible.

> If you discover a security vulnerability, please attempt to create a test case that proves this vulnerability locally before opening either a bug or a support issue. When creating an issue, please include information on how the vulnerability can be reproduced; see http://confluence.atlassian.com/display/DOC/Bug+Fixing+Policy for general bug reporting guidelines. We will prioritise fixing the reported vulnerability if your report has information on how the vulnerability can be exploited.

Further reading

See How to Get Legendary Support from Atlassian for more support-related information.

New Features Policy

Summary

- We encourage and display customer comments and votes openly in our issue tracking systems, http://jira.atlassian.com and http://studio.atlassian.com.
- We do not publish roadmaps.
- Product Managers review our most popular voted issues on a regular basis.
- We schedule features based on a variety of factors.
- Our Atlassian Bug Fixing Policy is distinct from our Feature Request process.
- Atlassian provides consistent updates on the top 20 feature/improvement requests (in our issue tracker systems).

How to Track what Features are Being Implemented

When a new feature or improvement is scheduled, the 'fix-for' version will be indicated in the JIRA issue. This happens for the upcoming release only. We maintain roadmaps for more distant releases internally, but because these roadmaps are often pre-empted by changing customer demands, we do not publish them.

How Atlassian Chooses What to Implement

In every major release we *aim* to implement highly requested features, but it is not the only determining factor. Other factors include:

- **Direct feedback** from face to face meetings with customers, and through our support and sales channels.
- **Availability of staff** to implement features.
- **Impact** of the proposed changes on the application and its underlying architecture.
- How **well defined** the requested feature is (some issues gain in popularity rapidly, allowing little time to plan their implementation).
- Our long-term **strategic vision** for the product.

How to Contribute to Feature Development

Influencing Atlassian's release cycle
We encourage our customers to vote on feature requests in JIRA. The current tally of votes is available online in our issue tracking systems, http://jira.atlassian.com and http://studio.atlassian.com. Find out if your improvement request already exists. If it does, please vote for it. If you do not find it, create a new feature or improvement request online.

Extending Atlassian Products
Atlassian products have powerful and flexible extension APIs. If you would like to see a particular feature implemented, it may be possible to develop the feature as a plugin. Documentation regarding the plugin APIs is available. Advice on extending either product may be available on the user mailing-lists, or at our community forums.

If you require significant customisations, you may wish to get in touch with our partners. They specialise in extending Atlassian products and can do this work for you. If you are interested, please contact us.

Further reading

See How to Get Legendary Support from Atlassian for more support-related information.

Patch Policy

Patch Policy

Atlassian will only provide software patches in extremely unusual circumstances. If a problem has been fixed in a newer release of the product, Atlassian will request that you upgrade your instance to fix the issue. If it is deemed necessary to provide a patch, a patch will be provided for the current release and the last maintenance release of the last major version (e.g. JIRA 3.13.5) only.

Patches are issued under the following conditions:

- The bug is critical (production application down or major malfunction causing business revenue loss or high numbers of staff unable to perform their normal functions).

- A patch is technically feasible (i.e., it doesn't require a major architectural change)
  OR
- The issue is a security issue, and falls under our Security Patch Policy.

Atlassian does not provide patches for non-critical bugs.

Provided that a patch does not impact the quality or integrity of a product, Atlassian will ensure that patches supplied to customers are added to the next maintenance release. Customers should watch a filed bug in order to receive e-mail notification when a "Fix Version" is scheduled for release.

Patches are generally attached to the relevant http://jira.atlassian.com issue.

Further reading

See How to Get Legendary Support from Atlassian for more support-related information.

Security Advisory Publishing Policy

Publication of Security Advisories

When a security vulnerability in an Atlassian product is discovered and resolved, Atlassian will inform customers through the following mechanisms:

- We will post a security advisory in the latest documentation of the affected product at the same time as releasing a fix for the vulnerability. This applies to all security advisories, including severity levels of critical, high, medium and low.
- We will send a copy of all security advisories to the **'Technical Alerts' mailing list** for the product concerned.
  Note: To manage your email subscriptions and ensure you are on this list, please go to my.atlassian.com and click 'Email Prefs' near the top right of the page.
- If the person who reported the vulnerability wants to publish an advisory through some other agency, such as CERT, we will assist in the production of that advisory and link to it from our own.

Early warning of critical security vulnerabilities:

- If the vulnerability is rated critical (see our criteria for setting severity levels) we will send an early warning to the 'Technical Alerts' mailing list approximately one week before releasing the fix. This early warning is in addition to the security advisory itself, described above.
- However, if the vulnerability is publicly known or being exploited, we will release the security advisory and patches as soon as possible, potentially without early warning.

Further reading

See How to Get Legendary Support from Atlassian for more support-related information.

Security Patch Policy

Product Security Patch Policy

Atlassian makes it a priority to ensure the customers' systems cannot be compromised by exploiting vulnerabilities in Atlassian products.

Scope

This page describes when and how we release security patches and security upgrades for our products. It does not describe the whole of disclosure process that we follow. It also excludes Studio, since Studio will always be patched by Atlassian without additional notifications.

Critical vulnerabilities

When a **Critical** security vulnerability is discovered by Atlassian or reported by a third party, Atlassian will do all of the following:

- Issue a new, fixed release for the current version of the affected product as soon as possible, usually in a few days.
- Issue a binary patch for the current release.
- Issue a binary patch for the latest maintenance release of the previous version of the product.
- Patches for older versions or releases normally will not be issued.

Patches will be attached to the relevant JIRA issue. You can use these patches as a "stop-gap" measure until you upgrade your installation in order to fully fix the vulnerability.

Non-critical vulnerabilities

When a security issue of a **High, Medium or Low** severity is discovered, Atlassian will do all of the following:

- Include the fix into the next scheduled release, both for the current and previous maintenance versions.
- Where practical, provide new versions of plugins or other components of the product that can be upgraded independently.

You should upgrade your installation in order to fix the vulnerability.

Other information

Severity level of vulnerabilities is calculated based on Severity Levels for Security Issues.

Visit our general Atlassian Patch Policy as well.

Examples

Example 1: A critical severity vulnerability is found in a (hypothetical current release) JIRA 5.3.2. The last bugfix release in 5.2.x branch was 5.2.3. In this case, a patch will be created for 5.3.2 and 5.2.3. In addition, new bugfix releases, 5.3.3 and 5.2.4, which are free from this vulnerability, will be created in a few days.

Example 2: A high or medium severity vulnerability is found in the same release as in the previous example. The fix will be included into the currently scheduled releases 5.3.3 and 5.2.4. Release schedule will not be brought forward and no patches will be issued. If the vulnerability is in a plugin module, then a plugin upgrade package may still be supplied.

Further reading

See How to Get Legendary Support from Atlassian for more support-related information.

Severity Levels for Security Issues

Severity Levels

Atlassian security advisories include a severity level. This severity level is based on our self-calculated CVSS score for each specific vulnerability. CVSS is an industry standard vulnerability metric. You can learn more about CVSS at FIRST.org web site.

CVSS scores are mapped into the following severity ratings:

- Critical
- High
- Moderate
- Low

An approximate mapping guideline is as follows:

CVSS score range	Severity in advisory
0 – 2.9	Low
3 – 5.9	Medium
6.0 – 7.9	High
8.0 – 10.0	Critical

Below is a summary of the factors which illustrate types of vulnerabilities usually resulting in a specific severity level. Please keep in mind that this rating does not take into account details of your installation.

Severity Level: Critical

Vulnerabilities that score in the Critical range usually include:

- Exploitation of the vulnerability results in root-level compromise of servers or infrastructure devices.
- The information required in order to exploit the vulnerability, such as example code, is widely available to attackers.
- Exploitation is usually straightforward, in the sense that the attacker does not need any special authentication credentials or knowledge about individual victims, and does not need to persuade a target user, for example via social engineering, into performing any special functions.

For critical vulnerabilities, is advised that you patch or upgrade as soon as possible, unless you have other mitigating measures in place. For example, if your installation is not accessible from the Internet, this may be a mitigating factor.

Severity Level: High

Vulnerabilities that score in the High range usually have the following characteristics:

- The vulnerability is difficult to exploit.
- Exploitation does not result in elevated privileges.
- Exploitation does not result in a significant data loss.

Severity Level: Moderate

Vulnerabilities that score in the Moderate range usually have the following characteristics:

- Denial of service vulnerabilities that are difficult to set up.
- Exploits that require an attacker to reside on the same local network as the victim.
- Vulnerabilities that affect only nonstandard configurations or obscure applications.
- Vulnerabilities that require the attacker to manipulate individual victims via social engineering tactics.
- Vulnerabilities where exploitation provides only very limited access.

Severity Level: Low

Vulnerabilities in the Low range typically have very little impact on an organisation's business. Exploitation of such vulnerabilities usually requires local or physical system access.

Further reading

See How to Get Legendary Support from Atlassian for more support-related information.

Local JIRA documentation

On this page:

- Why would I set up local online documentation?
- How to set up local online documentation for JIRA 4.0.x and later
    - Additional documentation spaces required
        - Why you need the additional documentation spaces
        - Determining the Version Required
        - List of Spaces Required
- How to set up local online documentation for JIRA 3.13.x and earlier
- Local field documentation

Why would I set up local online documentation?

You may wish to run the documentation locally, and have JIRA link to it. There are a few reasons you may wish to do this:

- JIRA's interface contains links ( ) to help pages, some to pages within JIRA, but many to the online documentation on www.atlassian.com. For deployments in environments without an internet connection, a local copy of the documentation is desirable.
- If you have customised JIRA, you may wish to update the documentation to reflect your changes, or add new pages.
- You can change the look and feel of the documentation to integrate into your company's intranet.

How to set up local online documentation for JIRA 4.0.x and later

1. Install Atlassian Confluence. (If you don't already have Confluence, ask for a free Evaluation License. You can use 'Anonymous' access to allow your users to view the documentation.)
2. Download the JIRA Documentation's XML source. Note that the Confluence version of the XML source needs to be the same major Confluence version as your local Confluence site.
3. Import the XML file into your Confluence site. (Note: if there is already a 'JIRA' space in your Confluence site, it will be overwritten.) For detailed instructions, see the Confluence documentation on Restoring a Space.
4. If you are importing the documentation for JIRA 4.1 or later, you will need to remove or adjust the customised header, footer and left-hand navigation bar in your new space.
   Explanation: When you create your new space from our XML source code, the space will inherit the Confluence 'Documentation' theme. The XML source code also includes the customisations we have made to the header, footer and left-hand navigation bar. These customisations include references to our Atlassian Documentation space. Since your Confluence site does not have that space, you will see errors like this in the left-hand navigation bar, header and footer in your new space:

   ```
   Unable to render {include} Couldn't find a space with key: ALLDOC
   ```

   To fix these errors, take one of the following steps:

   - Customise the navigation, header and footer sections to suit your Confluence site or environment. See our documentation on configuring the Documentation theme.
   - Or restore the default left-hand navigation bar, by removing all content from the navigation, header and footer sections and selecting the '**Page Tree**' check box. See our documentation on configuring the Documentation theme.
   - Or change the theme of your space to the Confluence default theme or another theme of your choice.
5. Download the XML source code for the additional documentation spaces listed below and import them into your Confluence site too.
6. *(Optional)* If you want JIRA's help links ( ) to point to your local documentation, you will need to:
   a. edit JIRA's `/WEB-INF/classes/help-paths.properties` file and change the `url-prefix` line so that it points to the 'JIRA' space in your local Confluence site, e.g.:

      ```
      url-prefix=http://confluence.mycompany.com/display/JIRA/
      ```

   b. restart JIRA.

Additional documentation spaces required

Why you need the additional documentation spaces

The JIRA documentation shares some content with other Atlassian products, such as Confluence. For the sake of efficiency, we reuse the same content across documentation spaces. You will notice that some of our pages contain an {include} macro that draws in content from another space.

For example, the following macro includes content from the Application Links (APPLINKS) space into the JIRA documentation space:

```
{include:APPLINKS:_securityTrustedApps}
```

You will need to import those documentation spaces into your Confluence site, to ensure that the reused content is accessible in your JIRA documentation.

Determining the Version Required

We supply different versions of the documentation, for each version of the software or plugin concerned. To see which version you need, take a look at the space key in the {include} macro concerned.

- If the space key has a number at the end, that number indicates the version. For example, `012` means version 1.2, and `011` means version 1.1.
- If the space key does not include a number, you need the latest version of the documentation.

Here is an example of an include macro that requires version 1.2 of the Application Links documentation:

```
{include:APPLINKS012:_securityTrustedApps}
```

This example requires the **latest** version of the Application Links documentation:

```
{include:APPLINKS:_securityTrustedApps}
```

List of Spaces Required

Retrieve the relevant version of the XML backups from these pages:

- Application Links
- Universal Plugin Manager
- User Management

How to set up local online documentation for JIRA 3.13.x and earlier

JIRA licensees can download the XML source for the documentation.

To build JIRA's docs locally:

1. Download Apache Forrest 0.5.1 (zip, tar.gz), used to render the docs.
2. Download the JIRA Documentation's XML source (6.2Mb). Note: the download is restricted to JIRA license holders.
3. Follow the JIRA_DOCUMENTATION.txt instructions in the package.

Local field documentation

If you just want to document usage of a custom field, please see Creating Help for a Custom Field.

JIRA FAQ

- What does JIRA mean?
- How is JIRA pronounced?
- Licensing

What does JIRA mean?

Like all good names in the software industry, it started as an in-house code name.

We originally used Bugzilla for bug tracking and the developers in the office started calling it by the Japanese name for Godzilla, **Gojira** (the original black-and-white Japanese Godzilla films are also office favourites). As we developed our own bug tracker, and then it became an issue tracker, the name stuck, but the **Go** got dropped - hence JIRA!

Further investigation into the name has revealed that **Gorira** is Japanese for "gorilla", whilst **Kujira** is Japanese for "whale". So **Gojira** is roughly translated to mean "gorilla the size of a whale"! (Thanks to yusuke_arclamp — Oct 2002)

For those who care - it sounds best if you yell it loudly, as though charging into battle. C'mon - try it!

Related

1. Filed your request in JIRA. What does that mean?
2. Talking that JIRA-slang language, or jiralang, if I may

How is JIRA pronounced?

We pronounce it 'JEEra', based on the pronunciation of 'Kujira' (see What does JIRA mean?)

Licensing

Please see our licensing FAQ

Related

JIRA 4.0 introduced new licensing — please see Licensing Changes.

JIRA Administrators FAQ

For more articles, please see the JIRA Knowledge Base.

JIRA Administrators FAQ

Performance FAQ

- Is your JIRA Running Slowly

Usage FAQ

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- CVS ssh Jira Integration
- Disabling Form Token Checking
- Displaying a Field Based on Another Field Selection
- Editing a custom field option
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- Workflows Guidebook
- XML format for import & export files

Installation Notes

- Configure JIRA as service on Mac OS X
- Configuring IIS with Tomcat
- Database Notes — These pages contain notes on configuring JIRA with various databases.
  - Connecting JIRA to a different database than the one provided as default
  - Incorrect database type specified
  - Restarting from Setup Wizard in JIRA Standalone
  - Surviving Connection Closures
  - Database limitations on number of projects
  - JIRA and HSQL
    - Running SQL commands in a HSQL database — On rare occasions, one may wish to run raw SQL queries on a JIRA or Confluence database. This page describes how to obtain a SQL console for hsqldb databases, which JIRA and Confluence Standalone editions use by default.
  - JIRA and MS SQL Server 2005
    - Connecting to named instances in SQL Server
    - Error caused by SET NOCOUNT in MS SQL Server
    - MS SQL Server 2000 Startup errors
    - Setting up your JIRA database for MS SQL Server 2005
  - JIRA and MS SQL Server 2008
  - JIRA and MySQL
    - Configuring MySQL 5.1 to store non-ASCII characters
    - JIRA Cannot Connect to MySQL with Named Pipes Enabled
    - JIRA Cannot Create Issues when Using MySQL with Binary Logging
    - MySQL Administrator and Data Truncation Errors
    - MySQL Data Access Exception - Errcode - 17 occurs with JIRA
    - Setting up JIRA Standalone and MySQL on Linux
  - JIRA and Oracle
    - Configuring Datasource for Oracle 10g JDBC drivers
    - Restoring data using I-Net (Oranxo) Driver for Oracle
    - Store Workflow on Disk with Oracle 8 — A workaround for the problem of > 4000 character workflows in Oracle 8 is to store these on disk, instead of in the database.
  - JIRA and PostgreSQL
    - Setting up JIRA Standalone and PostgreSQL on Linux
- How to Set Up SMTP Relay in Exchange 2007
- Installation Troubleshooting Guide
- Installing a LDAP server on Debian Linux for use with JIRA
- Installing Java on Ubuntu or Debian
- Is Clustering or Load Balancing JIRA Possible
- java.lang.NoClassDefFoundError
- JVM and Appserver configuration info
- LicenseFactory error after upgrading JIRA
- Logging request headers
- Running multiple instances of JIRA on one machine
- Solaris ClassNotFoundException
- Windows cannot find -Xms128m

Also check out the JIRA Community Space and the Forums

Performance FAQ

JIRA Administrators FAQ
Performance FAQ • Is your JIRA Running Slowly

Is your JIRA Running Slowly

This page is deprecated. Please see Crashes and Performance Issues Troubleshooting instead.

Usage FAQ

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Modifying the JIRA Footer

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

'Powered by Atlassian'
Also see clause 7 of the Atlassian End User License Agreement. This states that you must not remove the "Powered by Atlassian" link at the end of this file.

How to Modify the Footer

The footer can be modified by editing `<install directory>/atlassian-jira/WEB-INF/classes/templates/plugins/footer/footer.vm`.

```
...
<span #if($smallFooter) class="smallfooter" #else class="poweredbymessage" #end>
    #if ($longFooterMessage)Powered by #end<a
href="$externalLinkUtil.getProperty('external.link.jira.product.site')"
class="smalltext">Atlassian JIRA</a>
    the Professional <a
href="$externalLinkUtil.getProperty('external.link.jira.product.site')">Issue Tracker</a>.
    <span #if($smallFooter)class="smallgreyfooter" #else style="color: #666666;"
#end>($buildInformation)</span>#if($smallFooter)<br/>#end
    - <a
href="$externalLinkUtil.getProperty('external.link.jira.raise.issue')">Bug/feature request</a>
    - <a
href="$externalLinkUtil.getProperty('external.link.atlassian.news')">Atlassian news</a>
    - <a href="${req.contextPath}/secure/Administrators.jspa">Contact
Administrators</a>
</span>

\#if($smallFooter)
    </span>
\#end

</div>
```

Keep in mind the considerations about Modifying Jira Templates and JSPs. Restart JIRA after your customization in order for it to take effect.

RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List
Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

'Road Map', 'Change Log ', and 'Versions' Project Tabs Are Not Visible

Sometimes users cannot view the `Road Map`, `Change Log`, and `Versions` project tab panels under the `Browse Project` page. This is usually because the `Fix version/s` field is configure as `hidden` or the Road Map Panel, Change Log Panel, and Versions Panel plugin has been disabled in Project Panels Plugin.

In order to display those project tab panel, user needs to `unhide` the `Fix version/s` field. This setting can be changed from the `Field Configurations` section of the Administration Panel, which can be found under the `Issue Fields` heading.

For more information, please refer to Generating Reports and Specifying Field Behaviour.

To enable the plugin modules, go to `Administration >> System >> Plugins >> Project Panels Plugin` and enable the Road Map Panel, Change Log Panel, and Versions panel plugin so that the `Road Map`, `Change Log`, and `Versions` project tab panels will appear again in the `Browse Project` page.

Why Do Linked Issues in JIRA Appear with a Strike-Through

Always back up your data before performing any modification to the database.

JIRA shows linked issues as closed, even though they are open. There are no corresponding error messages found in JIRA's logs. This is caused by issues in the JIRA database having an invalid resolution. The following SQL query can be executed to confirm this:

```
select pkey, resolution from jiraissue where resolution not in (select id from resolution);
```

To fix the problem, run this SQL statement and reset the resolution to UNRESOLVED for the issues with invalid resolution.

```
UPDATE jiraissue SET resolution = NULL where resolution not in (SELECT id FROM resolution);
```

How to Enable the FishEye Plugin from the Plugin Administration Screen

When navigation to the Fisheye Plugin page under, Administration > Plugins > FishEye Plugin, JIRA shows that the plugin is disabled and the enable link to activate the plugin is missing. This occurs if the FishEye plugin was disabled in a previous version of JIRA. After an upgrade of JIRA, the enable link in Plugin Administration is missing. First paste the following URL into your web browser as the JIRA Administrator:

http://<JIRA--BASE_URL>/secure/admin/jira/ViewPlugins.jspa?mode=enable&pluginKey=com.atlassian.jira.ext.fisheye

If that fails to resolve the issue, then run the following SQL Query:

Please backup your data before running any SQL queries.

```
update propertystring set propertystring.propertyvalue = 'true' where propertystring.ID IN (select
ID from propertyentry where propertyentry.PROPERTY_KEY =
'jira.plugin.state-.com.atlassian.jira.ext.fisheye');
```

How to Add the Priority Field Into the Email Subject

You wish to add the priority into the Email Notification subject line that JIRA sends out when an issue is created or updated. This feature is available as of JIRA 4.1. More information on this feature can be found in our blog or in Customising Email Content.

How to Change the Number of Rows Allowed in the Text Type Custom Field Renderer

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

The default `Free Text Custom Field` editor renders as a `textarea` that is 4 lines long. This may be too small for comfortable data entry and editing. The functionality that controls the behavior of that field is hardcoded in file `<install directory>>atlassian-jira/WEB-INF/classes/templates/plugins/fields/edit/edit-textarea.vm`. Edit all occurrences of parameter `rows` in the `edit-textarea.vm` file to the desired value and restart JIRA for the changes to take effect.

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Page: Changing the Size of the Fix Versions and Affects Versions Select List

Page: How to Remove 'NONE' from a Select List Custom Field

Page: Changing the Size of the Text Area Custom Field

How to Make a Federated JIRA Instance

This page discusses some of the options around integrating one JIRA instance with another, when trying to update an issue in one instance based on an update from another.

The solution is fairly complex, and Atlassian recommends working with a partner on a solution.

Options

- Option one is to use a notification scheme from the original instance, then a Create or Comment Mail Handler on the destination

instance, to update the tickets across instances.
- Option two is to use a Jelly Service and the remote Api script to do something similar. You'd have to watch out for both problems above as well.

Challenges
A couple challenges with either approach:

1. You can run into a loop, where one instance updates the other, then vice-versa, ad infinitum.
2. You have a challenge of mapping which issue from the source maps to which issue from the destination.
   We thought you might be able to use a custom field from the source instance, then populate that with the issue from the destination instance, but you'd still need a bit of customisation from your mail handler to parse the email to do that mapping.

Consult our partner network for guidance.

How to Remove 'Unknown' Option from 'Component' and 'Fix Versions'

There is always an `Unknown` option in `Component` and `Fix Version/s` fields when creating/editing an issue.

To remove the field, make the `Components` and `Fix Version/s` field a required field in field configuration `Administration >> Issue Fields >> Field Configurations`. This will cause the `Unknown` option to disappear and also make the field as a mandatory field on `Create Issue screen`. For more information on field configuration, please refer to our documentation on Specifying Field Behaviour.

Automatic Escalation of issues

JIRA does not have the ability to auto-escalate issues meeting a certain criteria. There are a two solutions on how to implement Automatic Escalation in JIRA:

1. By using a Jelly script, issues that meet a certain criteria from a filter can be made to perform an action as described in the Jelly Escalation documentation.
2. Users/groups can also be notified with subscription to filters (e.g. Users can be periodically notified if an issue has been update for the last 2 days). Please refer to Receiving Search Results via Email for more information.

How to Activate Header Row for Subtask List in Issue Detail View

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Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
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1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

> Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

Some times it is nice to display the header row when viewing a list of sub-tasks in the Issue Detail view. There was a post about this in our forum community: http://forums.atlassian.com/thread.jspa?threadID=27500.

In order to accomplish this, it is necessary to modify `<install directory>/atlassian-jira/includes/panels/issue/view_subtaskissues.jsp`. Then implement the following method. setDisplayHeader as follows:

```
layout.setDisplayHeader(true);
```

Restart JIRA for the change to take effect.

How to Limit the Number of Characters Entered in a Summary Field

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To limit the number of characters entered in a summary field modify, the following velocity file `<installation directory>/atlassian-jira/WEB-INF/classes/templates/jira/issue/field/summary-edit.vm`. Please restart JIRA after the changes have been made. Note, these changes will also affect the size of summary fields for existing issues.

RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List
Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

JIRA's Timestamp Doesn't Match the System Time

This can occur from one of two reasons:

First Scenario:

Timestamps shown in the JIRA UI don't match the users' timezone but that of the server location. The timezone used is a JVM system property which defaults - unless specified - to that of the hosting operating system

It is not possible to localize the timezone on a per-user basis. It is possible to change the JVM timezone by setting the following JVM command line property: `-Duser.timezone=<TZ>`. Possible values are in the *zoneinfo* format (please see this list of zoneinfo time zones).

To set a command line option, see Setting properties and options on startup.

> Global organizations may consider setting the value to UTC.

Second Scenario:

JIRA's date/time may not have been updated after day light savings has taken affect - this is generally an issue with older versions of JAVA.

Upgrading JVM to the latest version will solve the problem. Please download the latest version from java.sun.com.

For further reference, see the following document:

- http://www.atlassian.com/software/jira/docs/latest/java.html

How to Attach a File During Issue Creation

It is possible to attach files during the issue creation screen. Attachment is a field which must be configured to display on the issue creation screen.

1. Under `Administration >> Issue Fields >> Field Configuration`, ensure that the `Attachment` field is not hidden.
2. Inspect JIRAs `Screen Schemes` and see this article on how Screens are associated with Issue Operations. Once you've identified the screen that's used for Issue Creation, ensure that the `Attachment` field is there.

How to Remove Duplicate Entries for Names and Groups

There are duplicate entries for names and groups in User browser and Group Browser. This is caused by the `<install directory>WEB-INF/classes/osuser.xml` file having the providers defined twice.

Make sure there are no duplicate entries in `WEB-INF/classes/osuser.xml`. If the JIRA installation type is WAR/EAR, please re-deploy WAR and restart JIRA. If the solution above does not address problem, try re-indexing JIRA, followed by a restart.

How to Export Users to CSV from JIRA

Sometimes it is useful to get a list of users exported to CSV for various purposes. JIRA doesn't currently have this functionality but you can leverage various database functionalities to do this.

Run one of the following queries specific to your database. The output will consist of the id, username and full name of the users.

Always back up your data before performing any modification to the database.

MySQL

```
SELECT u.id, u.username, ps.propertyvalue INTO OUTFILE '/path/to/userlist.csv'
    FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
    LINES TERMINATED BY '\n'
FROM userbase u JOIN propertyentry pe ON pe.entity_id = u.id JOIN propertystring ps ON ps.id =
pe.id
WHERE  property_key = 'fullName' ORDER BY propertyvalue ASC;
```

PostgreSQL

```
SELECT u.id, u.username, ps.propertyvalue INTO TEMPORARY TABLE userdetails
FROM userbase u JOIN propertyentry pe ON pe.entity_id = u.id JOIN propertystring ps ON ps.id =
pe.id
WHERE  property_key = 'fullName' ORDER BY propertyvalue asc;
```

```
copy userdetails to '/path/to/userlist.csv' using delimiters ',' CSV QUOTE AS '"';
```

How Come JIRA does Not Show Direct SQL Data Modifications

Direct database modifications are not supported by Atlassian. Always back up JIRA's database before performing any modification to it.

When making direct database modification queries (INSERT, UPDATE, DELETE), the changes are not reflected in the data presented on the application UI. The JIRA application has been written under the assumption that one instance will have exclusive access to the database schema. Some of the data is cached by the application and those caches are updated only when the application is aware that these have been changed. For the changes to be reflected:

1. Restart the application.
2. Perform any automated, scripted or mass edit through the application itself using one of the provided facilities:

- JIRA RPC plugin
- Jelly Scripting
- Bulk Operations

How to get JIRA Pages to Render when URL Contains an Underscore

When logging into JIRA through Internet Explorer with a URL that includes underscore (http://mycompany_jira.com), it will redirect every login attempt back to the login page. Logging in through through the Firefox, renders correctly.

This problem is specific to Internet Explorer. Internet Explorer is compliant with the RFC that defines the validity of an URL. An URL considered invalid in the RFC rules if the URL contains an underscore ("_"). This also could be caused by the base URL and Apache.

This can be resolved with either of the following methods:
1. Connect JIRA using the IP address or use "localhost" if it is on the same machine.
2. For a long term solution change the defined URL that doesn't contains an underscore.

Certain Action Words Show Incorrect Language Translations

Due to the way certain Java classes handle internationalization, some action words are dependent on the locale set by the JVM (which uses the system default locale).

For example, if the default system locale is set to French but JIRA's default language is set to English some words will still appear in French. Fortunately you can set the following properties to over-ride the default locale used by the JVM:

```
-Duser.language=en -Duser.country=US
```

See this page for a sample of the supported languages and country codes

Adding custom content to the front page

Custom HTML content can be easily added to the dashboard by a JIRA administrator.

For example, to customise the text that appears on users' dashboards, click on General Configuration, click '**Edit Configuration**', and edit the **Introduction** field.

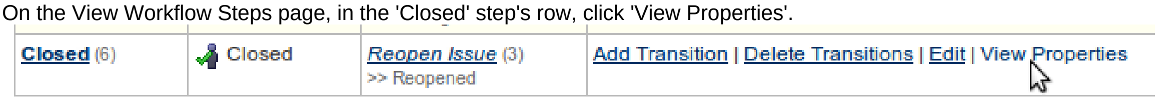
Note that look and feel can also be customised (e.g. add your organisation's logo and/or preferred colour scheme).

Additionally, the announcement banner is useful for sending broadcasts to all JIRA users.

Allow editing of Closed Issues

By default, it is not possible to edit an issue while in the "Closed" state. If you would like to allow editing of closed issues, this can be done by editing the workflow (see Configuring Workflow), and removing the `jira.issue.editable` flag from the **Closed** step. The steps are as follows:

1. Find the active workflow that applies to the issues you wish change. This is most easily done by going to the 'Workflow Schemes' admin page, then clicking on the Workflow link in the row applying to the issues' project and issue type.
2. It is not possible to edit an active workflow, so you will need to either make a copy (if using the default `jira` system workflow) or draft of the workflow, and edit that.
3. On the View Workflow Steps page, in the 'Closed' step's row, click 'View Properties'.



4. You should see a `jira.issue.editable` property with value `false`. Delete it, or set the value to true.
5. Publish your draft workflow, or if editing a copy, activate the workflow by creating a new workflow scheme associated with the edited workflow, and then associating it with your project.

> **Note**
> You can use the `jira.issue.editable` flag to enable/disable editing of issues at any step (not just the 'Closed' step).

Allowing users to create issues anonymously

JIRA can be configured to allow users to create issues without having logged into JIRA. There are two related actions:

1. Allowing users to browse and search issues in the project without logging in.
2. Allowing users to create issues in that project without logging in.

These can be achieved by adding the *Anyone* group to the **Browse Project** and **Create Issue** permissions in the permission scheme for the project. Additionally, *Reporter*, in the project's field configuration scheme, must be set as optional.

Any issue created by a user who is not logged in will display 'Anonymous' for the reporter of the issue.

Anonymising Data

> A Confluence data anonymiser is also available.

> For JIRA versions 3.7 through to 4.1, data sent via Administration -> Support Request is anonymised by default, and it is thus the easiest route to sending us anonymised data (but be sure your mail server has a username/password specified, so relaying is allowed).

> As of JIRA 4.1.1, it is no longer possible to send data via the Administraion -> Support Request page. To do so, please login to Atlassian Support and attach the data to the existing issue.

Support requests are resolved **much** faster if a data export is provided. However, with sometimes this is not an option because the data contains sensitive information.

In JIRA 3.7.x to 4.1, JIRA automatically anonymises data sent to Atlassian from the Administration -> Support Request page. For earlier or later versions, or people who want to anonymise JIRA data from the command-line, we've created a data 'anonymiser', which replaces most text in JIRA XML backups with **x**'s.

The anonymiser can be downloaded from here.

Unzip the package, then open a console and in the `jira_anon` directory run:

```
$ java -jar joost.jar <name of your backup file.xml> anon.stx > <name of the anonymised backup
file to be generated.xml>
```

For example:

```
$ java -jar joost.jar backup.xml anon.stx > anon-backup.xml
```

Then zip the generated backup XML file, and attach it to a support case on https://support.atlassian.com

The anonymiser currently replaces the following text with x's:

- Issue summary, environment, and description
- Comments, work logs, change logs
- Project descriptions
- Descriptions for most elements (notification schemes, permission schemes, resolutions)
- Attachment file names.
- "Unlimited text" custom fields

Check anon-backup.xml to ensure it's clean enough for your needs before you send to us.

Problems?

Invalid XML Characters

If, when you run the anonymiser, you get an error indicating that there are invalid XML characters in the XML backup of your database, run our utility to remove invalid XML characters first before anonymising.

Out of Memory / Heap Space Errors

If creating your anon-backup.xml partway through, you are likely facing a memory limitation with running the 'java' command with the default settings. To allow the command more memory for the command, simply add arguments after the 'java' command, like so:

```
$ java -Xms512m -Xmx512m -jar joost.jar backup.xml anon.stx > anon-backup.xml
```

Note: you may need to adjust the memory allocation beyond '512m' if the process continues to fail.

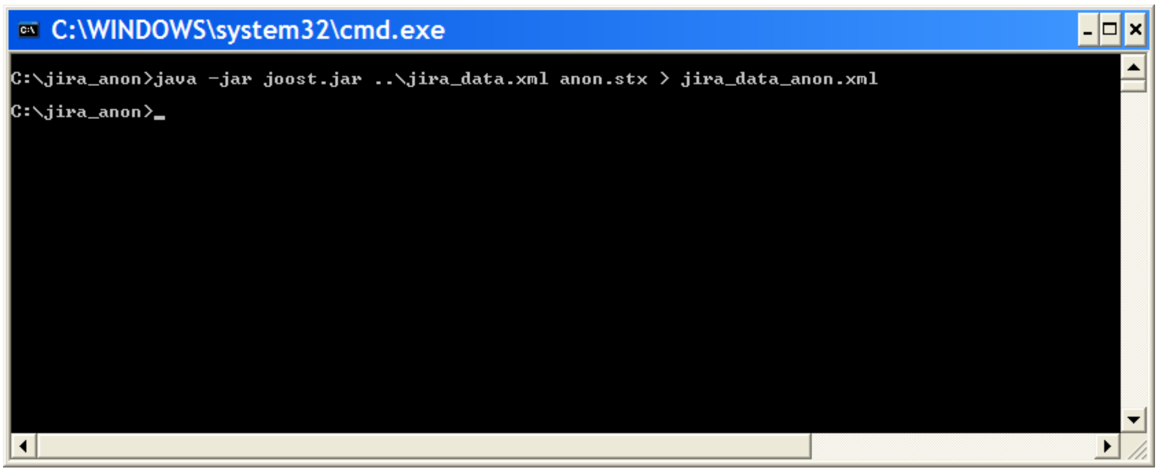
Java Version

You will need Java 1.4 or above to run this. You can check your Java version by running `java -version`, eg:

```
$ java -version
java version "1.5.0_07"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_07-b03)
Java HotSpot(TM) Client VM (build 1.5.0_07-b03, mixed mode, sharing)
```

If you find yourself using JDK 1.3 or earlier, check your path (`echo %PATH%` on Windows, `echo $PATH` on Unix) and ensure that the right version of Java is at the beginning. See the docs for more info on setting up Java.

The screenshot below is a simple example of how it is run in the command prompt of Windows XP:



Appending Email Addresses to Comments Made by Anonymous Users when Using a Mail Handler

To append email addresses to comments made by anonymous users when using a mail handler, follow the instructions below.

There is a feature request at JRA-21468. Vote to have this included in the product.

Follow the instructions in How to Make a JIRA Patch.

1. Modify AbstractCommentHandler.java by adding 6 more lines after line 81, after the code block under `if (body != null)`:

```
// append the From address at the end of  body
                     body += "\n[Commented via e-mail ";
                     if (message.getFrom() != null &&  message.getFrom().length > 0)
                         body += "received from: " +  message.getFrom()[0] + "]";
                     else
                         body += "but could not establish  sender's address.]";
```

2. Place the compiled .class file under `<jira-install` /WEB-INF/classes/com/atlassian/jira/web/action/issue/AbstractCommentableIssue.class
3. Restart JIRA

Tested on JIRA 3.13.5

Asking for an attachment on the Create Issue page

To prompt for an attachment on the Create Issue page, go to the relevant Field Configuration page (eg. Administration -> Issue Fields -> Field Configurations -> Default Field Configuration), and unhide the 'Attachment' field.

Associating a new screen with issue operations

When you spend some quality time creating a new screen with custom fields, you want to make people use it. This quick and dirty how-to helps make your screen implementation dreams come true!

1. The Screen

Create new screens to change the order of fields or add new custom fields to your display. Screens can be associated with issue operations (e.g. *Create New Issue*) or workflow transitions (e.g. *Start Progess*).

1. Create the screen you would like to use.
   Administration->Issue Fields->Screens

2. The Screen Scheme

A Screen Scheme allows you to hook basic Issue Operations (View, Edit, Create) to specified screens. You can either use the same screen for each operation or live on the bleeding edge and assign a different screen for each operation.

1. Create a screen scheme that uses this screen.
   Administration->Issue Fields->Screen Schemes->Add Screen Scheme
2. Once you have added the screen scheme, configure the screen scheme by clicking **Configure** next to the newly listed screen scheme.
3. Under the **Add Issue Operation To Screen Association** section, add each operation you would like to associate with this screen.

3. The Issue Type Screen Scheme

Issue Type Screen Schemes allow you to specify which Screen Scheme is associated with which issue type (e.g. *Bug*)

1. Create a new Issue Type Screen Scheme
   Administration->Issue Fields->Issue Type Screen Scheme
2. Under the **Add Issue Type Screen Scheme** section, add a new Issue Type Screen Scheme that uses your Screen Scheme.
   - **Extra credit:** You can click **Configure** next to your newly added Issue Type Screen Scheme in case you'd like to associate different Screen Schemes with different Issue Types. In this case, using the default setting is good enough.
3. Associate the Issue Type Screen Scheme with your project
   Administration->Projects
4. Click on the name of the project you wish to modify.
5. Under the Project, click the **Select** link next to **Issue Type Screen Scheme**.
6. Select your newly created Issue Type Screen Scheme and associate it with the specified project.

Did it work?
Issues in the specified project should now be using your customized screen. Test they are by creating, editing and viewing issues. The screens should be shown for the issue operations you assigned to your screen in Step 2.

Automatically Populate Timezone from a Created Issue

Atlassian Support likes to use customers' timezones to respond more effectively to support tickets. We extract timezone information automatically, so customers don't need to enter it manually. To do that, we add JavaScript to our custom field description:

```
Your timezone. The value is set automatically from your browser, so please only modify if it's
incorrect. <br>
<b><a href="http://www.worldtimezone.com/" target="timezone">World Timezones</a></b>

<script language="JavaScript">

<!--
function setCustomerTimezone()
{
 tzlist = document.getElementById("customfield_10421");
 if (tzlist) {
  if (/CreateIssueDetails.jspa/.test(tzlist.form.action)) {
// Value has not yet been set   if (tzlist.value == -1) {
    offset = new Date().getTimezoneOffset() / 60; // hours from GMT
    if (offset <= 0) { tzlist.value="GMT+"+(-offset);  }
    else { tzlist.value = "GMT-"+offset; }
//   }
  }
 }
}

window.onload = setCustomerTimezone;

//-->
</script>
```

Related Pages

Setting Priority field value based on customfield value
How to Set Default Comment Security Level
Creating Help for a Custom Field
Displaying a Field Based on Another Field Selection

Can I store customer details, like company, address and contact information, in JIRA?

JIRA itself stores only minimal user data (username, name, email, preferences). Since JIRA 3.7, you are able to store data in user 'properties' . You can store each customer detail as a separate user property, or create a wiki page for the customer and link to that instead. You could do this in Confluence by adding a Customer space and creating a page for every customer with their details. Then in JIRA, add a user property containing the link to that customer's page.

An alternative is to store user data in an LDAP server such as Active Directory or OpenLDAP. You can then authenticate users in JIRA against their LDAP password (see Configuring LDAP) and link to their full LDAP profile if available online.

There is also an open feature request for improved user properties at JRA-6354. You may wish to sign up for a user account and vote or comment to help influence our product roadmap.

Change JIRA Browser Icon

The JIRA logo '' is displayed in the user's browser to identify the JIRA browser tab. To use a custom image for your JIRA site:

1. Obtain or create an image in PNG file format. To maximise browser compatibility, it should be 32x32 pixels, 71x71 DPI and have 8 bit colour depth
2. In your JIRA install, find the `...atlassian-jira-enterprise-X.X-standalone/atlassian-jira/images/icons`
3. Backup the file `favicon.png`
4. Replace the `favicon.png` with your custom PNG image

   You may also need to backup and replace the following images in your JIRA install:
   - `...atlassian-jira-enterprise-X.X-standalone/atlassian-jira/favicon.ico`
5. Restart your application server

Users may need to clear their browser cache to view the new image.

Changing Custom Field Types

You generally can't shift between custom field types since the data type they store may not match.

Migrating Custom Field Content Manually

One workaround is to use bulk edit operations to migrate content:

1. Create a new field
2. Using Advanced Searching, search for all the instances of the old field.
3. Using a bulk edit operation, populate the new field with the value of the old field for all the issues found. If some issues are closed, you may have to see Allow editing of Closed Issues
4. Repeat this process for all values in the field.
5. Delete the old field, or remove it from the screen scheme.

Upgrading Custom Fields

Certain fields can be safely *upgraded*, such as Version and Select lists to their multiple values counterpart. You can change the "customfieldtypekey" in the "customfield" table to whatever you need it to be. The table below lists the keys for commonly changed fields.

Custom Field Type	Type Key
Single Version	com.atlassian.jira.plugin.system.customfieldtypes:version
Multi Version	com.atlassian.jira.plugin.system.customfieldtypes:multiversion
Single Select	com.atlassian.jira.plugin.system.customfieldtypes:select
Multi Select	com.atlassian.jira.plugin.system.customfieldtypes:multiselect
Multi User	com.atlassian.jira.plugin.system.customfieldtypes:multiuserpicker

When moving back from a multi select list a select list, you **have** to make sure that only one item is selected for each multi select list.

When moving from multi-select to multi-user, you **have** to ensure that each select-list value is a username (`userbase.username` value).

For select lists, you also need to update the "customfieldsearcherkey" field to use an appropriate searcher:

- For multi-selects, it is "com.atlassian.jira.plugin.system.customfieldtypes:multiselectsearcher"
- For select lists, use "com.atlassian.jira.plugin.system.customfieldtypes:selectsearcher"
- For multi-user pickers, use "com.atlassian.jira.plugin.system.customfieldtypes:userpickersearcher"

Examples

For example if you want to update all the version custom fields to become multiple version custom fields, you can use the SQL below.

```
UPDATE customfield
    SET customfieldtypekey = 'com.atlassian.jira.plugin.system.customfieldtypes:multiversion'
WHERE customfieldtypekey = 'com.atlassian.jira.plugin.system.customfieldtypes:version'
```

Or if you wanted to convert multi-select-list custom field to a multi-user custom field, first check that all custom field values map to users:

```
select * from customfieldvalue where id=
    (select id from customfield where cfname='multisel3') and
    stringvalue not in (select username from userbase);
Empty set (0.02 sec)
```

Then you can change the custom field type:

```
UPDATE customfield
    SET CUSTOMFIELDTYPEKEY='com.atlassian.jira.plugin.system.customfieldtypes:multiuserpicker',

CUSTOMFIELDSEARCHERKEY='com.atlassian.jira.plugin.system.customfieldtypes:userpickersearcher'
  where cfname='MyMultiSelect';
```

Or if you wanted to convert text-field custom field to a free-text-field(unlimited text) custom field, first assign the value from stringvalue field to textvalue:

```
UPDATE customfieldvalue SET textvalue=stringvalue WHERE ID=(SELECT ID FROM customfield WHERE
customfieldtypekey='com.atlassian.jira.plugin.system.customfieldtypes:textfield' AND cfname='Text
Field');
```

Then, change the custom field type by updating the customfield table as below:

```
UPDATE customfield SET
CUSTOMFIELDTYPEKEY='com.atlassian.jira.plugin.system.customfieldtypes:textarea',
CUSTOMFIELDSEARCHERKEY='com.atlassian.jira.plugin.system.customfieldtypes:textsearcher'
where cfname='Text Field';
```

Restart JIRA. Then reindex (Administration -> Indexing) to update the search index.

Changing Templates Used by Export to Excel from the Issue Navigator

When exporting a set of issues to Excel, customisation to the layout templates are controlled in Velocity files. Velocity templates for the export formats are defined in file `/atlassian-jira/WEB-INF/classes/system-issueviews-plugin.xml`. The following files in particular define the Excel views:

```
atlassian-jira/WEB-INF/classes/templates/plugins/searchrequestviews/searchrequest-excel-header.v

atlassian-jira/WEB-INF/classes/templates/plugins/searchrequestviews/searchrequest-excel-footer.v

atlassian-jira/WEB-INF/classes/templates/plugins/searchrequestviews/searchrequest-description-he
```

Refer to Microsoft® Office HTML and XML Reference for further information on the syntax of the template contents.

Changing the default attachment size limit

To change the default size limit for attachments, see the Configuring File Attachments page.

Changing the Default Order for Comments from Ascending to Descending

To change the default order from Ascending to Descending so that the latest comments are shown first, follow these steps:

1. Edit `<JIRA_install>/atlassian-jira/WEB-INF/classes/jira-application.properties`.
2. Change `jira.issue.actions.order=asc` to `jira.issue.actions.order=desc`
3. Restart JIRA.

Changing the default session timeout

To change the default session timeout (which is 60 minutes) you must edit the file `web.xml`. This file can be found in `<YOUR DEPLOYMENT>/WEB-INF/web.xml`. If you are deploying JIRA as a closed `.war` file you will need to unzip the .war, edit the file, and re-create the `.war` with exactly the same structure as it originally had.

The element you want to edit in the `web.xml` file is:

```
<source>
    <session-config>
        <session-timeout>60</session-timeout>
    </session-config>
</source>
```

The value within the **session-timeout** tag defines the amount of time the session will exist, in minutes.

Note that after editing the `web.xml` file you will need to restart JIRA for your change to take effect.

Changing the Default Tab Panel from Comments to All

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

The simple procedure on this page describes how to change the default view of issues from 'Comments' to 'All'. To do this, change the configuration file which controls the display of the tabs:

1. Edit the file `<jira-install\WEB-INF\classes\system-issuetabpanels-plugin.xml)`.
2. Each tab is controled by a `<issue-tabpanel>` tag. To change the default selection, the `<default>true</default>` needs to be placed in the wanted `<issue-tabpanel>` tag.

Changing the Due Date Input Format

These time and date formats are used throughout JIRA. To specify them, use the format described at http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html.

When you are not in edit mode, the examples in the rightmost column show you how the various formats will appear.

To set the date picker format, see 'Advanced JIRA configuration with jira-application.properties'. Here are some example configurations for U.S time:

Preferred Date	Configuration in jira-application.properties
Oct/1/10	jira.date.picker.java.format = MMM/d/yy jira.date.picker.javascript.format = %b/%e/%y
10/05/10	jira.date.picker.java.format = MM/dd/yy jira.date.picker.javascript.format = %m/%d/%y
Jan 5, 2010	jira.date.picker.java.format = MMM dd, yyyy jira.date.picker.javascript.format = %b %d, %Y
10/05/2010	jira.date.picker.java.format = MM/dd/yyyy jira.date.picker.javascript.format = %m/%d/%Y

Changing the Issue Key format

By default, JIRA issue keys are of the format **<project key>-<issue id>**, eg. ABC-123. This general format is not changeable. However it is possible to alter the project key format in the **jira-application.properties** file, where it is defined as a regular expression:

```
jira.projectkey.pattern = ([A-Z][A-Z]+)
```

As you can see, the default is two or more A-Z characters. If, for instance, you wanted to allow numbers (eg. 'ABC2-123'), you would change the regexp to ([A-Z][A-Z0-9]+).

Also, although JIRA normally starts counting from 1 ('ABC-1', 'ABC-2' etc) you can adjust the starting count by editing the **project.pcounter** row in the database. JIRA caches this value in memory, so first shutdown your JIRA instance before updating the database. Then make the change in the database, then restart JIRA.

You should be able to find this file in your JIRA installation directory under:
\atlassian-jira\WEB-INF\classes

You may need to search hidden files and folders for it to appear.

Changing the Project Key

It is not currently possible to change the project key through JIRA's interface. The best way to do this is to:

1. Export your JIRA data to XML.
2. Go through the file and replace the instances of the project's key:
    - in the 'key' attribute of the Project entity
    - in the 'key' attribute of all Issue entities.
3. Search for the project key in the whole XML file. You should not find too many references. Change any that you find.
4. Rename all attachment folders, as the folder name depends on the project key. This includes one folder for each issue with an attachment, plus one top-level folder for the project.
5. Reimport your data.
6. Reindex the data by navigating to Administration -> System -> Indexing and selecting '**Re-Index**'.

Changing the Size and Content of the Components Select List

This page describes how to increase the size of the Components drop-down list. Please see JRA-3028 for the full feature request.

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

This workaround will apply to all Components drop-down lists in the instance.

Increasing the size of the field

Edit <`atlassian-jira/WEB-INF/classes/templates/jira/issue/field/components-edit.vm`. Change the line:

```
<select multiple name="$field.id"  id="$field.id" size="#if ($components.size() > 3 ) 5 #else 3
#end">
```

For example, if you wanted to make it 15 (in the case where there are more than 3):

```
<select multiple name="$field.id"  id="$field.id" size="#if ($components.size() > 3 ) 15 #else 3
#end">
```

Adding a Description

From <`atlassian-jira/WEB-INF/classes/templates/jira/issue/field/components-edit.vm`, change:

```
>$textutils.htmlEncode($component.getString('name'))</option>
```

to:

```
>$textutils.htmlEncode($component.getString('name')) -
$textutils.htmlEncode($component.getString('description'))</option>
```

Make sure to back up the velocity file before changing it. Keep in mind the notes from Modifying JIRA Templates and JSPs.

RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List
Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

Changing the Size of the Fix Versions and Affects Versions Select List

This page describes how to increase the size of the Fix Version/s and Affects Version/s drop-down lists. Please see JRA-3028 for the full feature request.

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

This workaround will apply to all Fix Version/s and Affects Version/s drop-down lists in the instance.

Increasing the size of the field

Edit `<atlassian-jira/WEB-INF/classes/templates/jira/issue/field/components-edit.vm`. Change the line:

```
<select multiple name="$field.id" size="#minSelectSize ($versions 1 6)" id="$field.id">
```

For example, if you wanted to make it 15 (in the case where there are more than 3):

```
<select multiple name="$field.id" size="#minSelectSize ($versions 1 15)" id="$field.id">
```

Make sure to back up the velocity file before changing it. Keep in mind the notes from Modifying JIRA Templates and JSPs.

RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List

Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

Changing the Size of the Text Area Custom Field

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

To work around the fixed size of a comment field, edit
`<jira-install>/atlassian-jira/WEB-INF/classes/templates/plugins/fields/edit/edit-textarea.vm`.

To change the size for all rows:

```
$!rendererParams.put("rows", "2")
```

To change the size for a particular custom field:

In this example, the custom field's id is 10220. You can get this value from editing the custom field and checking the URL.

```
#controlHeader ($action $customField.id $customField.name $fieldLayoutItem.required
$displayParameters.noHeader)

#if ($!customField.id=="customfield_10220")
  ## setup some additional parameters
  $!rendererParams.put("rows", "2")
  $!rendererParams.put("cols", "40")
  $!rendererParams.put("wrap", "virtual")

  ## let the renderer display the edit component
  $rendererDescriptor.getEditVM($!value, $!issue.key, $!fieldLayoutItem.rendererType,
$!customField.id, $!customField.name, $rendererParams, false)

#elseif ($!customField.isRenderable() && $rendererDescriptor)

  ## setup some additional parameters
  $!rendererParams.put("rows", "2")
  $!rendererParams.put("cols", "40")
  $!rendererParams.put("wrap", "virtual")

  ## let the renderer display the edit component
  $rendererDescriptor.getEditVM($!value, $!issue.key, $!fieldLayoutItem.rendererType,
$!customField.id, $!customField.name, $rendererParams, false)

#else

  <textarea name="$customField.id"
            id="$customField.id"
            class="textfield"
            rows="4" cols="40" wrap="virtual"
  >$textutils.htmlEncode($!value)</textarea>
#end

#controlFooter ($action $fieldLayoutItem.fieldDescription $displayParameters.noHeader)
```

There is a feature request to allow this cusomtisation from within JIRA at JRA-20248.

Changing the Temporary Directory

To move the temp directory, edit `<JIRA>/bin/catalina.sh`:

```
if [ -z "$CATALINA_TMPDIR" ] ; then
  # Define the java.io.tmpdir to use for Catalina
  CATALINA_TMPDIR="$CATALINA_BASE"/temp
fi
```

Replace the `"$CATALINA_BASE"/temp` with your temporary file directory.

Changing Usernames in JIRA

Currently JIRA does not have the ability to change usernames. Manually editing the database is not recommended due to the number of places the username is referenced (comments and filters for example).
The best option in this case is to edit the XML backup:

1. Create an XML Backup
2. Execute a global find and replace for the username
3. Restore JIRA with the new backup

> If the username is a common word (e.g. admin), you may replace text that is not relevant to the user. So please be aware of this issue when performing the replace.

Configuring project specific security

We are often asked the following:

How do we configure the system so that a user/user group can only register/see issues on one specific project?

In order to configure the above please follow the below instructions and tweak as necessary for your organization:

1. Create a new Permission Scheme (Administration -> Schemes -> Permission Scheme) for Project External say **External_Permission_Scheme**
2. Create a new user group say **Group_External** (Administration -> Users & Groups -> Group Browser)
3. Add the External Users to that group
4. Associate **External_Permission_Scheme** to Project External (Administration -> Projects -> Project -> select Project External)

Note.

When users are created they are automatically a member of the jira-user group in order to allow them to login. The thing to note here is that the **Default Permission Scheme** grants users within the **jira-user group** certain permissions so those projects using the **Default Permission Scheme** will essentially give those users access to it.

To get around this either:

- Remove your external users from the **jira-user group** and give **Group_External** the ability to login by granting them the **global JIRA Users** permission (Administration -> Global Settings -> Global Permissions)
  OR
- Edit any Permission Schemes that grant the **jira-user group** specific permissions

It is also important to add that with the release of 3.7 and the introduction of Roles within JIRA it will not be necessary to create Groups for the above configuration.

For a detailed example using **Group Permissions** please see the following documentation: Using Project Level Security with User Groups

For a detailed example using **Project Role's** please see the following documentation: Using Project Level Security with Project Roles

Controlling project visibility

You can restrict project visibility to particular groups of users by using project permissions.

For example, if customers from Company X were put into the group "Cust-X" and given "Browse" permission for project Y, they will only be able to see Project Y (assuming you did not grant them the "Browse" permission for any other projects).

You should of course also give your developers permission to browse and operate on the project.

If you would like to restrict users to issues which they have created, set the "Browse Project" permission to be "Reporter." This way the user will have access to only the issues which they have created across all projects, but they will not be able to see any other issues.

You can also set security on an issue-by-issue basis. For more information on JIRA's Issue Level Security, please consult the documentation .

Using Project Level Security with Project Roles

This tutorial provides a step-by-step guide for creating project roles and using them in an issue security scheme. We recommend creating a test project and two test users for this tutorial.

> **Tutorial Goal**
> When completed, this tutorial will provide two issue security levels. One for issues that specific customers and your company can view, another for internal company eyes only.

1.Adding Project Roles

First we need to create project roles for our scheme to use:

Administration -> Users, Groups and Roles -> Project Role Browser -> Add Project Role

1. Create a project role called Customer A.
2. Create a project role called Customer B.
3. Create a project role called My Company.

In this example, the My Company project role will always have the same users/groups for each project. As a result, we'll set default members that will be used for all projects that use this scheme.

1. Next to the My Company project role, click Manage Default Members.
2. Add the users or groups for your company by clicking Edit next to the appropriate default (users or groups).

2. Adding an Issue Security Scheme

Next, we need to create the issue security scheme which will be hooked to our test project a bit later in this tutorial:

Administration -> Schemes -> Issue Security Schemes -> Add Issue Security Scheme

1. Add a new issue security scheme called Customers and My Company Issue Security Scheme.

3. Adding Issue Security Levels

We need to add security levels for this new issue security scheme. These levels will be available for selection to those that have permission to add issue security levels to issues. Users can only see levels of which they are members.

Administration -> Schemes -> Issue Security Schemes -> Click the Security Levels link next to Customers and My Company Issue Security Scheme

First we need to add a level for each customer:

1. Add a new issue security level called Customers and My Company.
2. Add the Customer A, Customer B and My Company project roles to this issue security level.
3. Click Default to make this the Default.

Next, we want a level for internal company eyes only:

1. Add another issue security level called My Company
2. Add the My Company project role to this issue security level.

4. Associating your Issue Security Scheme with a Project

Explain the step here and use the following syntax and color for menu notations:

Administration -> Project -> Projects -> Click on your test project name

1. For the Issue Security Scheme option, click Select.
2. Choose the Customers and My Company Issue Security Scheme from the list.
3. Click Next.
4. If you would like to associate existing issues with a security level, select it from the list, if not leave it at None.
5. Click Associate.

5. Adding project-specific members to a project role.

We need to specify the project-specific role members for the Customer A & B project roles.

Administration -> Project -> Projects -> Project Team -> Project Roles -> View Members

1. Add the first test user to the Customer A project role by clicking Edit in the Users column.
2. Add the second test user to the Customer B project role by clicking Edit in the Users column.

Project roles allow you to use the same permission scheme for multiple projects. We can change the members of project roles via the project!

Did it work?

1. Create one issue and set the Issue Security Level to My Company.
2. Create another issue and set the Issue Security Level to Customer A.
3. Create one more issue and set the Issue Security Level to Customer B.
4. Try logging in as each test user to ensure that they only see the appropriate issue.

Using Project Level Security with User Groups

This documentation is meant to give an in-depth analysis of Configuring project specific security — allowing full access to all projects for internal users, and limited access to external users by using JIRA groups and a project permission schemes. It is also possible to use Project Roles, but in this case we did not.

The example is based on the Atlassian Project Permission documentation. While that documentation tells you everything you can do, we get a lot of questions about how exactly to set your system up to have two or more classes of users:

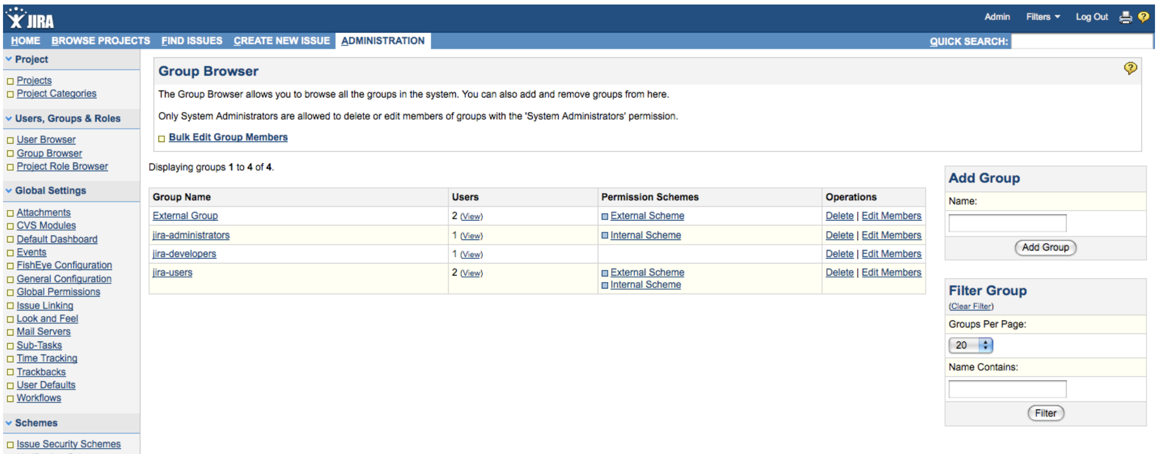
- Internal users (such as employees at your company) who have full permission
- External users (such as customer at your company) who have limited permission

Usually, though, in order to accomplish a security configuration which fits your company exactly, it will require a good amount of time, effort, and imagination on your part. At the moment JIRA is only able to support security at a project level or issue level. **Currently there is no field level security available.**

The first step for project level security is to define user groups. In this case a group called "external group" was created. All internal users will just be in the default "jira-users" group. In a default JIRA instance, when a user is created they will automatically be put into the jira-users group. Anyone who is external will have to be manually assigned to the external group and be removed from the jira-users group. There is no way to automatically assign users to certain groups without massive customizations to the JIRA environment. The reason for taking the approach of assigning all internal users to the jira-users group, is because this documentation is assuming that clients already have many internal users. Assigning a small group of users to one group as opposed to reassigning hundreds or thousands of users is easier.

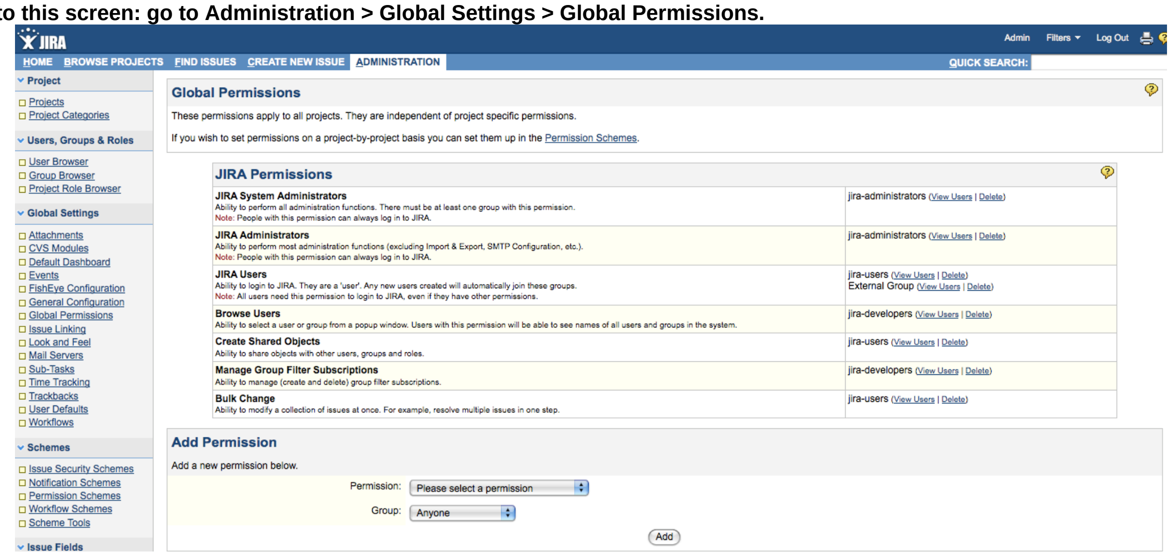
If starting from scratch, it is better to define and assign groups new groups from the beginning. For example, an "internal group" as well as an external group. But, in this example we will just look at jira-users and the external group. See the group settings in the image below for more detail:

To get to this screen: go to Administration > Users, Groups & Roles > Group Browser.



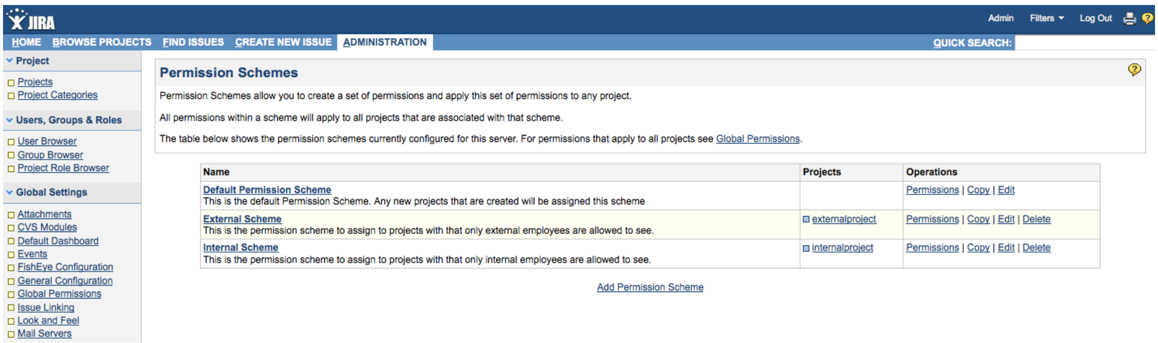
Now make sure that the External Group is added to the global JIRA Users permission so that they have access to JIRA. All users must be in the global JIRA Users group in order to access JIRA. **Note: The JIRA Users group is different from the jira-users group. JIRA Users is global while jira-users is group specific.** See the image below for more detail.

To get to this screen: go to Administration > Global Settings > Global Permissions.



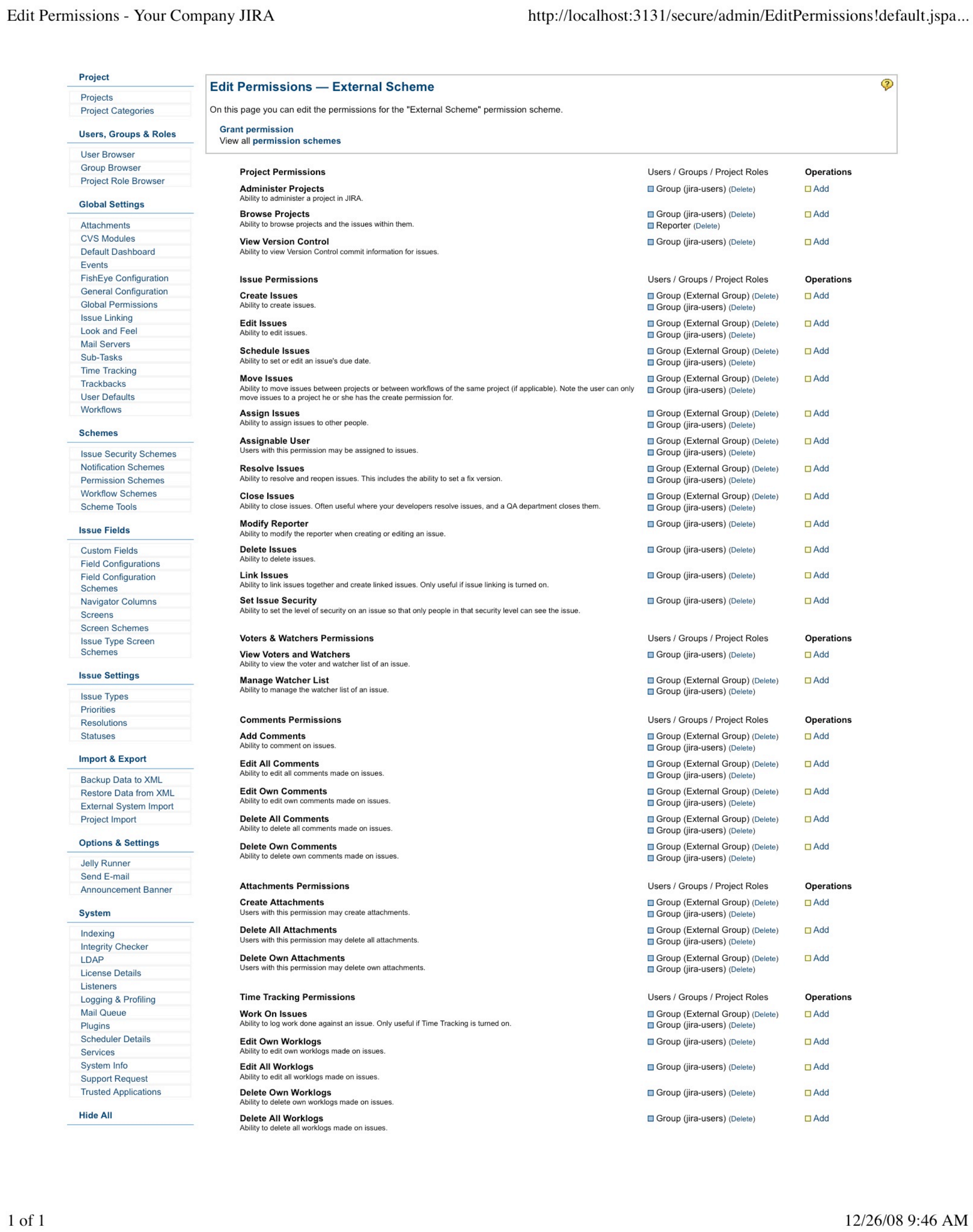
After creating the desired groups, separate permission schemes for each group need to be made. In the below image two schemes were created; an internal scheme and an external scheme. Obviously the internal scheme is for internal users and the external scheme is for external users. If your company has multiple users from multiple companies, you will need to make multiple schemes and groups for each project.

To get to this screen: go to Administration > Schemes > Permission Schemes.



After the schemes have been created, they must be tailored to meet your needs. For example: In the external scheme attach below, jira-users are given all permissions, while the External Group is given limited rights. Both groups must be present in this permission scheme to ensure that both internal users and external users have access to whichever project this scheme is assigned to. Only jira-users should be assigned to the Internal Scheme. See images below for more detail. **Please note that in the External Permission Scheme the "Browse Projects" category has both jira-users and reporters (rather than External Group).** This was done so external users can only see tickets they have created in the External Project and not others tickets. However, if "Reporter" is replaced with "External Group" then the External Group users will be able to view all tickets associated with the project..

To get to this screen: go to Administration > Schemes > Permission Schemes > Click on External Scheme.



Edit Permissions - Your Company JIRA http://localhost:3131/secure/admin/EditPermissions!default.jspa...

Project
Projects
Project Categories

Users, Groups & Roles
User Browser
Group Browser
Project Role Browser

Global Settings
Attachments
CVS Modules
Default Dashboard
Events
FishEye Configuration
General Configuration
Global Permissions
Issue Linking
Look and Feel
Mail Servers
Sub-Tasks
Time Tracking
Trackbacks
User Defaults
Workflows

Schemes
Issue Security Schemes
Notification Schemes
Permission Schemes
Workflow Schemes
Scheme Tools

Issue Fields
Custom Fields
Field Configurations
Field Configuration Schemes
Navigator Columns
Screens
Screen Schemes
Issue Type Screen Schemes

Issue Settings
Issue Types
Priorities
Resolutions
Statuses

Import & Export
Backup Data to XML
Restore Data from XML
External System Import
Project Import

Options & Settings
Jelly Runner
Send E-mail
Announcement Banner

System
Indexing
Integrity Checker
LDAP
License Details
Listeners
Logging & Profiling
Mail Queue
Plugins
Scheduler Details
Services
System Info
Support Request
Trusted Applications

Hide All

Edit Permissions — External Scheme

On this page you can edit the permissions for the "External Scheme" permission scheme.

Grant permission
View all **permission schemes**

Project Permissions	Users / Groups / Project Roles	Operations
Administer Projects Ability to administer a project in JIRA.	Group (jira-users) (Delete)	Add
Browse Projects Ability to browse projects and the issues within them.	Group (jira-users) (Delete) Reporter (Delete)	Add
View Version Control Ability to view Version Control commit information for issues.	Group (jira-users) (Delete)	Add

Issue Permissions	Users / Groups / Project Roles	Operations
Create Issues Ability to create issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Edit Issues Ability to edit issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Schedule Issues Ability to set or edit an issue's due date.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Move Issues Ability to move issues between projects or between workflows of the same project (if applicable). Note the user can only move issues to a project he or she has the create permission for.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Assign Issues Ability to assign issues to other people.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Assignable User Users with this permission may be assigned to issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Resolve Issues Ability to resolve and reopen issues. This includes the ability to set a fix version.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Close Issues Ability to close issues. Often useful where your developers resolve issues, and a QA department closes them.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Modify Reporter Ability to modify the reporter when creating or editing an issue.	Group (jira-users) (Delete)	Add
Delete Issues Ability to delete issues.	Group (jira-users) (Delete)	Add
Link Issues Ability to link issues together and create linked issues. Only useful if issue linking is turned on.	Group (jira-users) (Delete)	Add
Set Issue Security Ability to set the level of security on an issue so that only people in that security level can see the issue.	Group (jira-users) (Delete)	Add

Voters & Watchers Permissions	Users / Groups / Project Roles	Operations
View Voters and Watchers Ability to view the voter and watcher list of an issue.	Group (jira-users) (Delete)	Add
Manage Watcher List Ability to manage the watcher list of an issue.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add

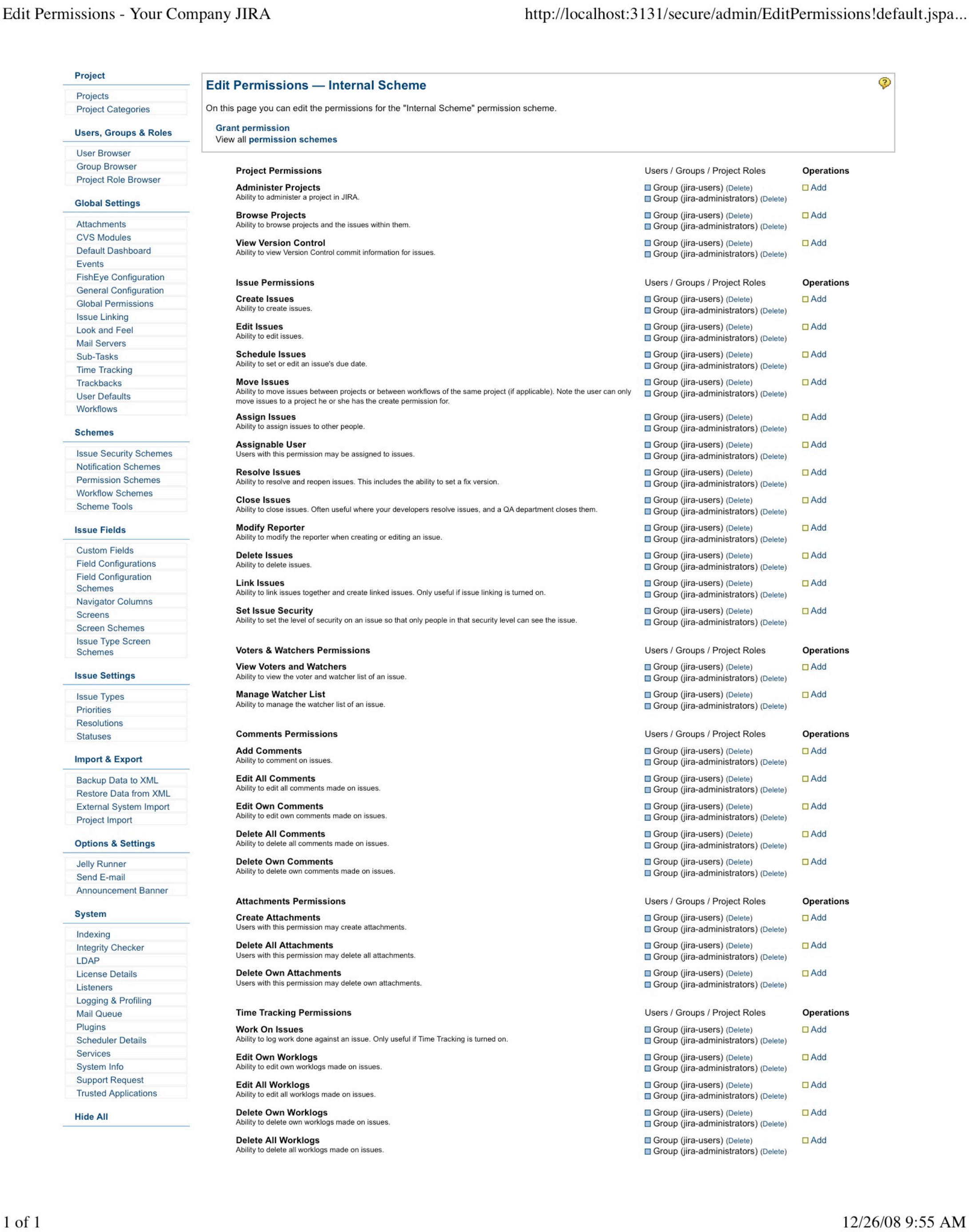
Comments Permissions	Users / Groups / Project Roles	Operations
Add Comments Ability to comment on issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Edit All Comments Ability to edit all comments made on issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Edit Own Comments Ability to edit own comments made on issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Delete All Comments Ability to delete all comments made on issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Delete Own Comments Ability to delete own comments made on issues.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add

Attachments Permissions	Users / Groups / Project Roles	Operations
Create Attachments Users with this permission may create attachments.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Delete All Attachments Users with this permission may delete all attachments.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Delete Own Attachments Users with this permission may delete own attachments.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add

Time Tracking Permissions	Users / Groups / Project Roles	Operations
Work On Issues Ability to log work done against an issue. Only useful if Time Tracking is turned on.	Group (External Group) (Delete) Group (jira-users) (Delete)	Add
Edit Own Worklogs Ability to edit own worklogs made on issues.	Group (jira-users) (Delete)	Add
Edit All Worklogs Ability to edit all worklogs made on issues.	Group (jira-users) (Delete)	Add
Delete Own Worklogs Ability to delete own worklogs made on issues.	Group (jira-users) (Delete)	Add
Delete All Worklogs Ability to delete all worklogs made on issues.	Group (jira-users) (Delete)	Add

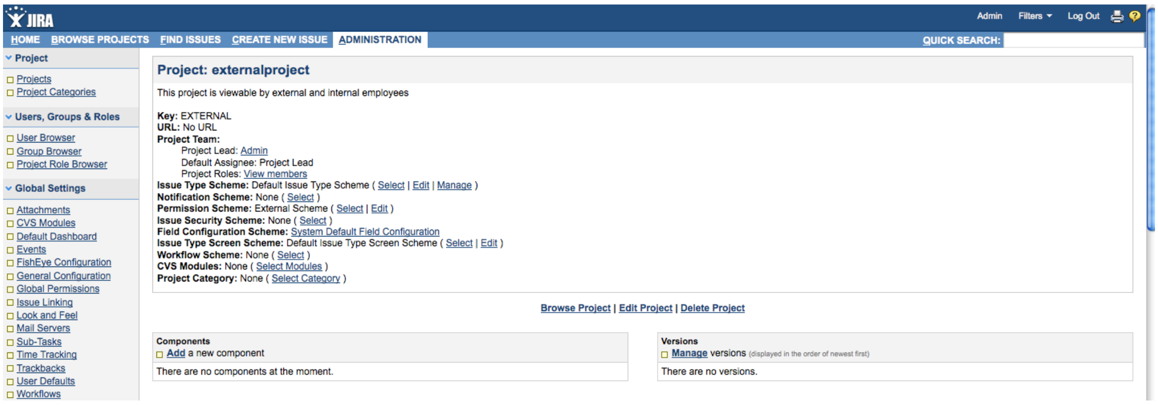
1 of 1 12/26/08 9:46 AM

To get to this screen: go to Administration > Schemes > Permission Schemes > Click on Internal Scheme.

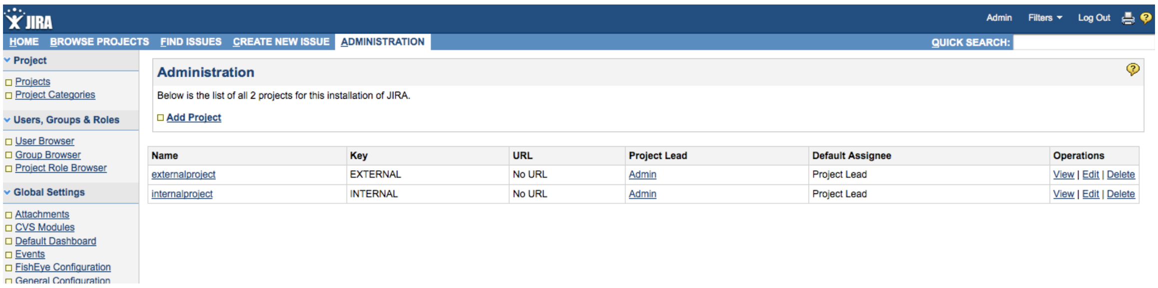


Now assign the appropriate permission scheme to the appropriate project. For this example the internal scheme will be assigned to the the internal project and the external scheme will be assigned to the external project. See the images below for more detail:

To get to this screen: go to Administration > Project > Projects > Click on External Project.

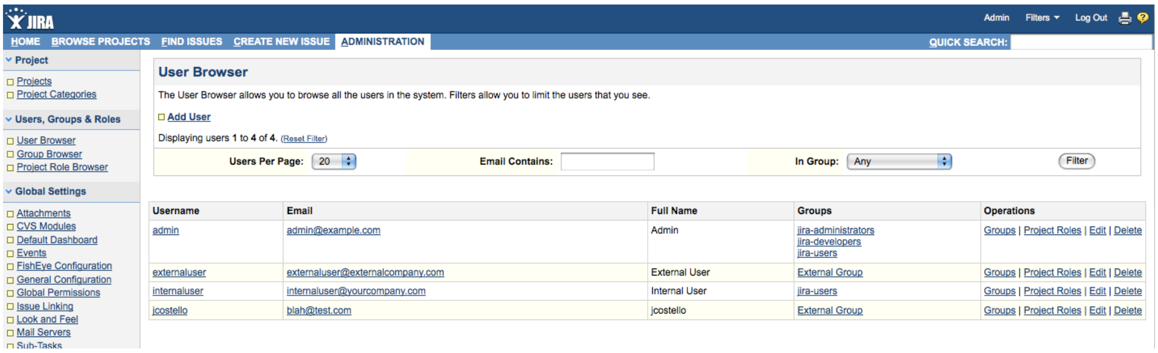


To get to this screen: go to Administration > Project > Projects > Click on Internal Project.



Once the above steps have been completed create users and add them to the appropriate group as seen in the image below. Note: When users are created will automatically be created belonging to jira-users and External Group. THe administrator will be responsible for manually removing the users from groups that the user should not belong to.

To get to this screen: go to Administration > Users, Groups & Roles > User Browser.



If done correctly the internal employees(jira-users) will have access to all projects, while the external users will only have access to their projects. Feel free to download the XML backup of this example on your local test instance.

The sample file

- Please ensure you have backed up your existing JIRA instance
- You can download the JIRA helpdesk sample file here: ExampleSecurity.zip
- Restore the sample data file. You can learn how to restore a file here

User list and logins

- All user passwords are the same: **admin**
- The main username to login with is: **admin**
    - Full JIRA admin rights
    - Access to all projects

- Internal users are: **internaluser**
- These users are in the group: **jira-users**
- Access to both the Internal and External Projects and all issues.

- External users are: **externaluser** and **jcostello**
- These users are in the group: **External Group**
- Access to External Project and Issues Created only.

Connecting to SSL services

On this page:

- Problem symptoms
- The cause
- The fix
    - Obtain the server's public key.
    - Import the public key.
    - Restart the app server
    - Note: alternative keystore locations
    - Debugging
        - Using Java
        - Using openssl
- See also

This page describes how to get web applications like JIRA and Confluence connecting to external servers over SSL, via the various SSL-wrapped protocols. For instance, you may want to:

- Refer to an `https://...` URL in a Confluence macro.
- Use an IMAPS server to retrieve mail in JIRA.
- Use SMTP over SSL (SMTPS) to send mail in JIRA.
- Connect to a LDAP directory over SSL.
- Set up **Trusted Applications** over SSL.

If you want to run JIRA *itself* over SSL, see Running JIRA over SSL or HTTPS.

Problem symptoms

Simply entering the 'https' URL, or specifying IMAPS in JIRA will result in odd java.net.ssl.* exceptions in the logs, for example:

```
javax.net.ssl.SSLHandshakeException: sun.security.validator.ValidatorException: PKIX path building failed:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target
at com.sun.mail.imap.IMAPStore.protocolConnect(IMAPStore.java:441)
at javax.mail.Service.connect(Service.java:233)
at javax.mail.Service.connect(Service.java:134)
....
```

The cause

The problem is that our webapp is now acting as a SSL client, and as a client, it needs to obtain and 'trust' the server's *public key*.

> This is identical to what happens when you visit a https://... URL in a browser - the browser fetches the public key and (if not signed by a trusted agent) presents it to you for inspection. If you trust the key, the browser saves it, and uses it to encrypt all subsequent communication with the site. We need to emulate this process before our webapp can access https resources.

The fix

Obtain the server's public key.

To quote Microsoft; "consult your system administrator". The public/private key pair will live somewhere on the server. The public key should be located and copied to the server hosting JIRA/Confluence. For example:

```
scp root@mail.yourcompany.com:/etc/ssl/certs/imapd.pem .
```

If you have openssl installed locally, the key can be retrieved with a command like:

```
jturner@teacup:~$ openssl s_client -connect imap.atlassian.com:imaps
CONNECTED(00000003)
depth=0 /C=AU/ST=NSW/L=Sydney/O=Atlassian/CN=imap.atlassian.com/emailAddress=info@atlassian.com
.....
.....
Server certificate
-----BEGIN CERTIFICATE-----
MIICiTCCAfKgAwIBAgIBADANBgkqhkiG9w0BAQQFADB/MQswCQYDVQQGEwJBVTEM
MAoGA1UECBMDTlNXMQ8wDQYDVQQHEwZTeWRuZXkxEjAQBgNVBAoTCUF0bGFzc2lh
bjEaMBgGA1UEAxMRY3ZzLmF0bGFzc2lhbi5jb20xITAfBgkqhkiG9w0BCQEWEmlu
Zm9AYXRsYXNzaWFuLmNvbTAeFw0wNTA5MjMwNjUyNTNaFw0wNjA5MjMwNjUyNTNa
MH8xCzAJBgNVBAYTAkFVMQwwCgYDVQQIEwNOU1cxDzANBgNVBAcTBlN5ZG5leTES
MBAGA1UEChMJQXRsYXNzaWFuMRowGAYDVQQDExFjdnMuYXRsYXNzaWFuLmNvbTEh
MB8GCSqGSIb3DQEJARYSaW5mb0BhdGxhc3NpYW4uY29tMIGfMA0GCSqGSIb3DQEB
AQUAA4GNADCBiQKBgQDhwAgx/gDgKe9tBjUCj7JtVkwQSzj2Dq0PHiJu1AWUYWFW
ivbBWaWSYbt/w9vIRSL8OlGVOLnlFOH5o7QIpIBZvd3xBMv6DxMijM86/hu8QTPt
KcMuqBTGpu1T846SzNncj883wSE1hXxezCgEFCsqyC7dVX4l0Ay6zgzkt2wc3QID
AQABoxUwEzARBglghkgBhvhCAQEEBAMCBkAwDQYJKoZIhvcNAQEEBQADgYEAJOgg
O4brCcQa3IgONo8UmLcHo6Rq+Py6ZA3ueUegy/uyQ358JUeL4kktXuYL9gAPCuMc
hsC1iyaOrWY/S9S67w2ZWqc+uYX9ophFHkxK1r3YiaiMpEzMyB12VWSrOITcR0LV
7NTWfxfPLUpkDbj+Mw/66QJkI0lqBvcKn3KXI74=
-----END CERTIFICATE-----
```

Cut and paste the certificate (including BEGIN and END lines) into a local file (eg. imapd.pem).

Import the public key.

To do this, you need to use the `keytool` program that comes with Java. If you haven't already, add `$JAVA_HOME/bin` to your PATH, and then run the following:

```
jturner@teacup:~$ sudo keytool -import -alias mail.yourcompany.com -keystore
$JAVA_HOME/jre/lib/security/cacerts -file imapd.pem
Enter keystore password:  changeit
Owner: EMAILADDRESS=info@atlassian.com, CN=atlassian.com, O=Atlassian, L=Sydney, ST=NSW, C=AU
Issuer: EMAILADDRESS=info@atlassian.com, CN=atlassian.com, O=Atlassian, L=Sydney, ST=NSW, C=AU
Serial number: 0
Valid from: Fri Feb 11 14:09:05 EST 2005 until: Sat Feb 11 14:09:05 EST 2006
Certificate fingerprints:
MD5:  CB:AE:7D:5D:1A:08:06:77:93:3B:0F:53:BB:40:C0:D4
SHA1: 7C:02:44:0D:A9:8F:F9:FB:BB:7B:C6:F1:52:DE:CA:00:17:D9:3A:A0
Trust this certificate? [no]:  yes
Certificate was added to keystore
```

This will import the public key (imapd.pem) into Java's default keystore, and marks it as trusted.

On Windows the command is similar, eg.:

```
C:\Program Files\Java\jre1.6.0_05>bin\keytool -import -file c:\certs\imapd.pem -alias
mail.yourcompany.com -keystore lib\security\cacerts
Enter keystore password:
Owner: CN=*.atlassian.com, OU=IT, O=ATLASSIAN SOFTWARE SYSTEMS PROPRIETARY LIMITED, L=Sydney,
ST=NSW, C=au
Issuer: CN=DigiCert Global CA, OU=www.digicert.com, O=DigiCert Inc, C=US
Serial number: a2d7047dc5d47ba988c9685e1efb860
Valid from: Thu Jan 10 11:00:00 EST 2008 until: Fri Jan 14 10:59:59 EST 2011
Certificate fingerprints:
         MD5:  9D:B4:9F:3D:0A:DE:6A:BD:BC:3D:95:BE:60:BD:70:02
         SHA1: 67:C6:E9:C8:3F:F1:7A:3C:66:E2:CE:62:78:A1:66:84:35:5E:62:1E
         Signature algorithm name: SHA1withRSA
         Version: 3
.....

Trust this certificate? [no]:  yes
Certificate was added to keystore

C:\Program Files\Java\jre1.6.0_05>
```

Restart the app server

Restart, and if everything is correct, your webapp should now connect to the SSL resource without problems.

Note: alternative keystore locations

Java will normally use a system-wide keystore in `$JAVA_HOME/jre/lib/security/cacerts`, but it is possible to use a different keystore by specifying a parameter, **-Djavax.net.ssl.trustStore=/path/to/keystore**, where '/path/to/keystore' is the absolute file path of the alternative keystore.

Setting this **is not recommended**, however, because if Java is told to use a custom keystore (eg. containing a self-signed certificate), then Java will not have access to the root certificates of signing authorities found in `$JAVA_HOME/jre/lib/security/cacerts`, and accessing most CA-signed SSL sites will fail. It is better to add new certificates (eg. self-signed) to the system-wide keystore (as above).

There is also a per-user truststore (~/.keystore -- at least on Linux), but its contents do not appear to be logically appended to those in the system-wide keystore; ie. it is entirely separate, and only used if one specifies `-Djavax.net.ssl.trustStore=/home/<user>/.keystore`. This has the same disadvantage described above with custom keystores, so the per-user truststore is best avoided.

Debugging

Problems are one of two forms:

- Java is not referring to the correct keystore.
- The keystore does not contain the certificate of the SSL service you're connecting to.

Using Java

The attached SSLPoke.class Java program (source) is useful for debugging. It simply connects to a SSL service, sends a byte of input, and watches the output. For instance, connecting to a local HTTPS server on port 443 (the HTTPS default) with a untrusted (self-signed) certificate:

```
jturner@psyche:~$ java SSLPoke localhost 443
sun.security.validator.ValidatorException: PKIX path building failed:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification
path to requested target
        at sun.security.validator.PKIXValidator.doBuild(PKIXValidator.java:285)
        at sun.security.validator.PKIXValidator.engineValidate(PKIXValidator.java:191)
        at sun.security.validator.Validator.validate(Validator.java:218)
        at
com.sun.net.ssl.internal.ssl.X509TrustManagerImpl.validate(X509TrustManagerImpl.java:126)
        at
com.sun.net.ssl.internal.ssl.X509TrustManagerImpl.checkServerTrusted(X509TrustManagerImpl.java:209)
at
com.sun.net.ssl.internal.ssl.X509TrustManagerImpl.checkServerTrusted(X509TrustManagerImpl.java:249)
at com.sun.net.ssl.internal.ssl.ClientHandshaker.serverCertificate(ClientHandshaker.java:954)
        at com.sun.net.ssl.internal.ssl.ClientHandshaker.processMessage(ClientHandshaker.java:123)
        at com.sun.net.ssl.internal.ssl.Handshaker.processLoop(Handshaker.java:511)
        at com.sun.net.ssl.internal.ssl.Handshaker.process_record(Handshaker.java:449)
        at com.sun.net.ssl.internal.ssl.SSLSocketImpl.readRecord(SSLSocketImpl.java:817)
        at
com.sun.net.ssl.internal.ssl.SSLSocketImpl.performInitialHandshake(SSLSocketImpl.java:1029)
        at com.sun.net.ssl.internal.ssl.SSLSocketImpl.writeRecord(SSLSocketImpl.java:621)
        at com.sun.net.ssl.internal.ssl.AppOutputStream.write(AppOutputStream.java:59)
        at com.sun.net.ssl.internal.ssl.AppOutputStream.write(AppOutputStream.java:73)
        at SSLPoke.main(SSLPoke.java:28)
Caused by: sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid
certification path to requested target
        at
sun.security.provider.certpath.SunCertPathBuilder.engineBuild(SunCertPathBuilder.java:174)
        at java.security.cert.CertPathBuilder.build(CertPathBuilder.java:238)
        at sun.security.validator.PKIXValidator.doBuild(PKIXValidator.java:280)
        ... 15 more
```

and connecting to a CA-verified certificate:

```
jturner@psyche:~$ java SSLPoke mail.atlassian.com 443
Successfully connected
jturner@psyche:~$
```

Similarly you would test port 636 to test LDAPS connections.

Make sure that the version of Java you are using is the same as that used in your production Java application. On Unix systems, 'ps -ef | grep java' will show the full command for Java processes. Check for the presence of a `-Djavax.net.ssl.trustStore` parameter. If `-Djavax.net.ssl.trustStore` is present in the command, this may well be the cause of your problems (see discussion above). You can verify whether the `-Djavax.net.ssl.trustStore` parameter is causing problems by running the `SSLPoke` test utility above with it, eg:

```
java -Djavax.net.ssl.trustStore=/my/custom/keystore SSLPoke localhost 443
```

If this fails (confirming the problem), the solution is to remove the `-Djavax.net.ssl.trustStore` parameter, import your custom keystore certificates into the main keystore with `keytool -importkeystore -srckeystore /my/custom/keystore -destkeystore $JAVA_HOME/jre/lib/security/cacerts`, and restart the application.

If you are sure the certificate is trusted and found by Java, and you are having low-level SSL problems, you can get debug information in the stdout logs by setting the `-Djavax.net.debug=all` property.

Using openssl

The `openssl` commands are very useful for debugging SSL problems. For instance, to print the server's certificate:

```
jturner@psyche:~$ openssl s_client -connect localhost:443 2>/dev/null
CONNECTED(00000003)
---
Certificate chain
 0 s:/C=AU/ST=NSW/L=Sydney/O=Atlassian/OU=Support/CN=localhost/emailAddress=jeff@atlassian.com
   i:/C=AU/ST=NSW/L=Sydney/O=Atlassian/OU=Support/CN=localhost/emailAddress=jeff@atlassian.com
---
Server certificate
-----BEGIN CERTIFICATE-----
MIICizCCAfQCCQCt7NSYJaxDETANBgkqhkiG9w0BAQUFADCBiTELMAkGA1UEBhMC
QVUxDDAKBgNVBAgTA05TVzEPMA0GA1UEBxMGU3lkbmV5MRIwEAYDVQQKEwlBdGxh
c3NpYW4xEDAOBgNVBAsTB1N1cHBvcnQxEjAQBgNVBAMTCWxvY2FsaG9zdDEhMB8G
CSqGSIb3DQEJARYSamVmZkBhdGxhc3NpYW4uY29tMB4XDTA4MDEwMzAwMTEzMVoX
DTA4MDIwMjAwMTEzMVowgYkxCzAJBgNVBAYTAkFVMQwwCgYDVQQIEwNOU1cxDzAN
BgNVBAcTBlN5ZG5leTESMBAGA1UEChMJQXRsYXNzaWFuMRAwDgYDVQQLEwdTdXBw
b3J0MRIwEAYDVQQDEwlsb2NhbGhvc3QxITAfBgkqhkiG9w0BCQEWEmplZmZAYXRs
YXNzaWFuLmNvbTCBnzANBgkqhkiG9w0BAQEFAAOBjQAwgYkCgYEApOEOBbKKj189
15w078TUsR68gOahr6KiXg3s2zOyVaFbAepTnvhgtzej/qOJ8ESU5quCNIeBALov
PRyxUyySBLOV14i3vrhqugQLKeYUiCIehri2iRaU+/6FsX8kIgfSBIMu75uV0bnM
9A6t1zZizSdcP+1k2DzaIc8sXzkpJ2sCAwEAATANBgkqhkiG9w0BAQUFAAOBgQCA
jm1xW5DvCYvHCa76QIwmsEIxCvya2zEqiwhAYC9gLbuQ1kjFgpn17U9x2ltJ1jWE
/5BQOeRk+cBaVVZJpfrKAUZoRczsNIQcaDs3JEUrZ6qBUxXheT8MijXhhhnKN0Fl
CvOuhw5DsgtEa1MT3CWetf9XFD3K4NI5+X7ihehs9g==
-----END CERTIFICATE-----
subject=/C=AU/ST=NSW/L=Sydney/O=Atlassian/OU=Support/CN=localhost/emailAddress=jeff@atlassian.com
issuer=/C=AU/ST=NSW/L=Sydney/O=Atlassian/OU=Support/CN=localhost/emailAddress=jeff@atlassian.com
---
```

(add `-showcerts` to print all the certificates in the chain)

save it to a local file:

```
jturner@psyche:~$ cat > localhost.pem
-----BEGIN CERTIFICATE-----
MIICizCCAfQCCQCt7NSYJaxDETANBgkqhkiG9w0BAQUFADCBiTELMAkGA1UEBhMC
QVUxDDAKBgNVBAgTA05TVzEPMA0GA1UEBxMGU3lkbmV5MRIwEAYDVQQKEwlBdGxh
c3NpYW4xEDAOBgNVBAsTB1N1cHBvcnQxEjAQBgNVBAMTCWxvY2FsaG9zdDEhMB8G
CSqGSIb3DQEJARYSamVmZkBhdGxhc3NpYW4uY29tMB4XDTA4MDEwMzAwMTEzMVoX
DTA4MDIwMjAwMTEzMVowgYkxCzAJBgNVBAYTAkFVMQwwCgYDVQQIEwNOU1cxDzAN
BgNVBAcTBlN5ZG5leTESMBAGA1UEChMJQXRsYXNzaWFuMRAwDgYDVQQLEwdTdXBw
b3J0MRIwEAYDVQQDEwlsb2NhbGhvc3QxITAfBgkqhkiG9w0BCQEWEmplZmZAYXRs
YXNzaWFuLmNvbTCBnzANBgkqhkiG9w0BAQEFAAOBjQAwgYkCgYEApOEOBbKKj189
15w078TUsR68gOahr6KiXg3s2zOyVaFbAepTnvhgtzej/qOJ8ESU5quCNIeBALov
PRyxUyySBLOV14i3vrhqugQLKeYUiCIehri2iRaU+/6FsX8kIgfSBIMu75uV0bnM
9A6t1zZizSdcP+1k2DzaIc8sXzkpJ2sCAwEAATANBgkqhkiG9w0BAQUFAAOBgQCA
jm1xW5DvCYvHCa76QIwmsEIxCvya2zEqiwhAYC9gLbuQ1kjFgpn17U9x2ltJ1jWE
/5BQOeRk+cBaVVZJpfrKAUZoRczsNIQcaDs3JEUrZ6qBUxXheT8MijXhhhnKN0Fl
CvOuhw5DsgtEa1MT3CWetf9XFD3K4NI5+X7ihehs9g==
-----END CERTIFICATE-----
jturner@psyche:~$
```

We can now calculate the fingerprint of the certificate with `openssl x509`:

```
jturner@psyche:~$ openssl x509 -fingerprint -md5 -noout -in localhost.pem
MD5 Fingerprint=29:37:D6:C3:03:B6:0B:29:76:55:B5:35:E0:BE:21:5C
jturner@psyche:~$
```

and verify that this fingerprint matches what is in Java's keystore:

```
jturner@psyche:~$ keytool -keystore /usr/lib/jvm/java-6-sun/jre/lib/security/cacerts -list | grep
-A2 localhost
Enter keystore password:  changeit
localhost, 27/06/2008, trustedCertEntry,
Certificate fingerprint (MD5): 29:37:D6:C3:03:B6:0B:29:76:55:B5:35:E0:BE:21:5C
verisignclass3ca, 28/10/2003, trustedCertEntry,
jturner@psyche:~$
```

See also

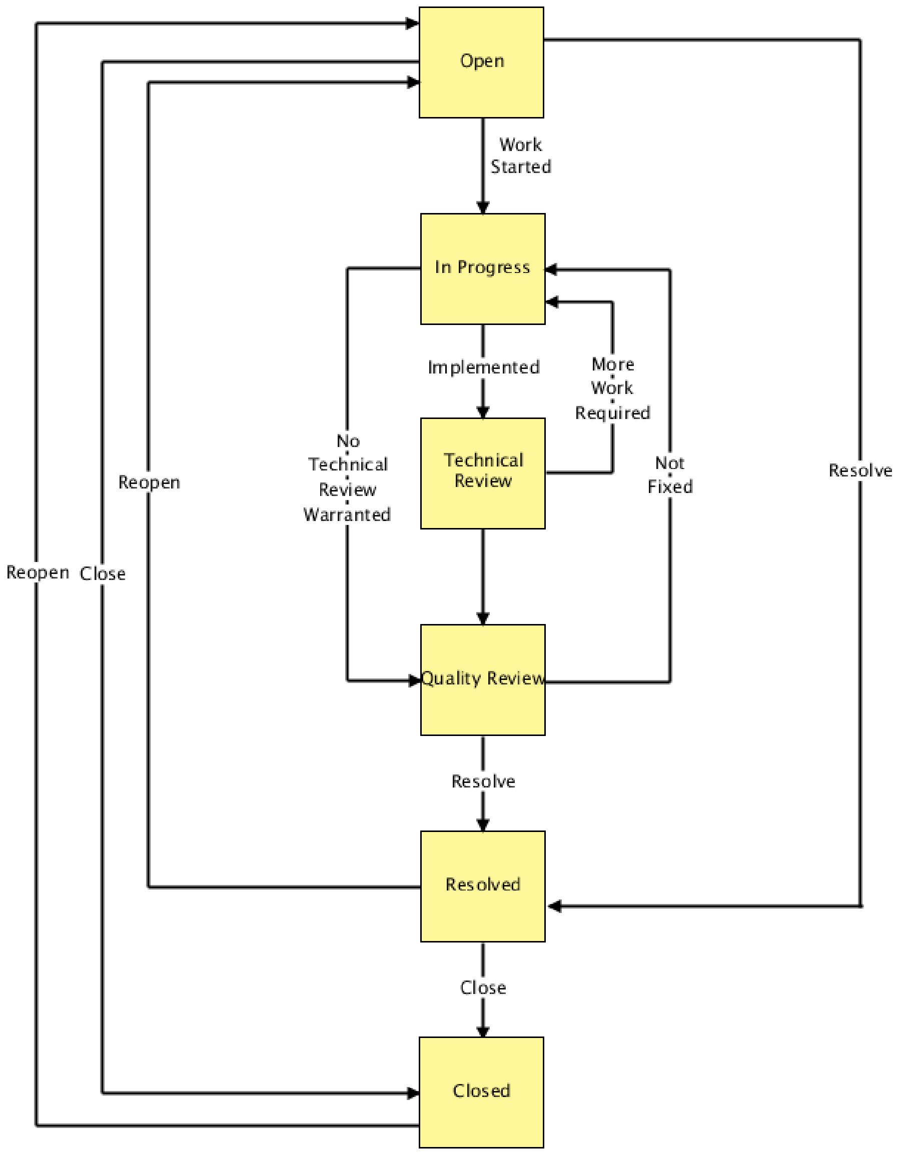
- Configuring an SSL Connection to Active Directory

Creating a Custom Workflow

Customised workflows are one of the key features within JIRA. Yet I often hear users mention that JIRA workflows are complex to implement and hard to understand. A lot of this sentiment stems from the sheer flexibility of JIRA's workflow functionality. As a JIRA QA Engineer, I can vouch that once you know how to use JIRA workflows, you will love them.

Creating a customised workflow allows JIRA to reproduce specific internal processes. At a very high level, workflows can be customised for different projects and issue types. You could for example have 'Support Requests' follow one custom workflow while 'Feature Requests' follow an entirely independent workflow. In this tutorial, I will be creating a copy of the default workflow of JIRA and customising it by adding some steps to it.

Whenever you implement a new customised workflow, it is always best to start by creating a visual representation of your workflow, ideally in the form of a flowchart. I am going to do this using Confluence, together with a diagramming plugin called Gliffy. You can see the flowchart I created here:



As you may have picked up, the workflow I am creating is for use in a software development team. In this example, I want to ensure that once development has checked-in their code, then we can conduct a 'Technical Review' (for conducting a code review in this case), and then move on to a 'Quality Review' (for testing by the quality assurance team). These are both going to be new steps within the existing default JIRA workflow.

Ensuring you have JIRA Administration privileges, head over to the JIRA Administration tab. Here you will see links to 'Workflows' and 'Workflow Schemes'. 'Workflows' let you define specific workflows whereas 'Workflow Schemes' allow you to map one or more specific workflows to certain issue types and in turn to certain projects.

To demonstrate the power of JIRA, I'm also going to add in some custom screens to display specific fields (including custom fields) within specific stages of the workflow. The tasks that I am going to focus on are:

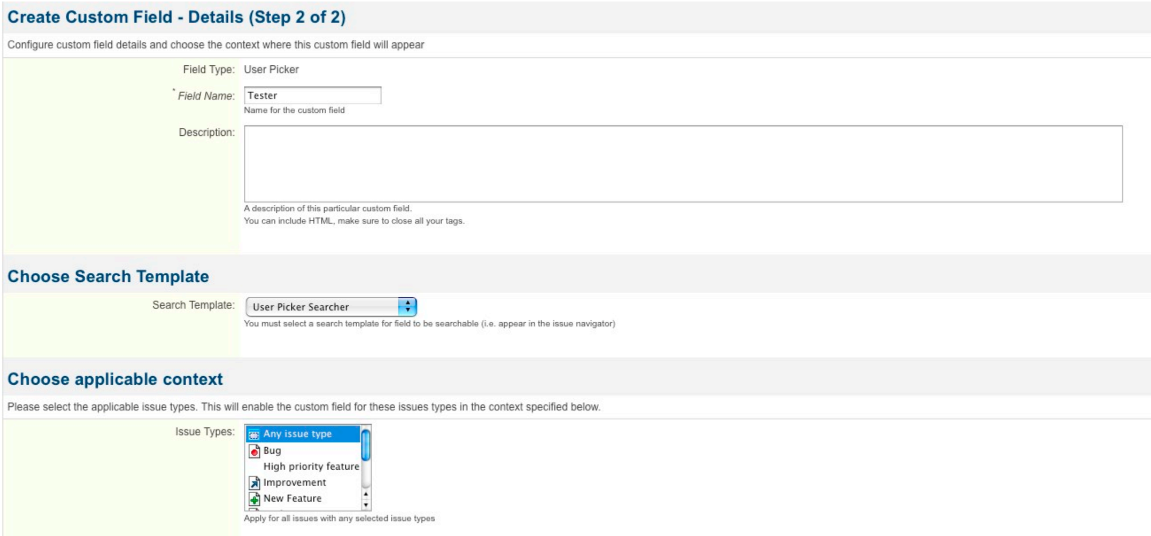
- **Add Custom Field:** I'm going to add a custom field allowing us to select a specific user or 'Tester' to conduct our Quality Review.
- **Add a Custom Screen:** I'll create a new screen to ask users to select a user as the Tester, displaying the 'Tester' custom field we are adding.
- **Add New Status:** To reflect the new statuses our issue can be in, I'll add a status for 'Technical Review' and another for 'Quality Review'.

Step 1: Add Custom Field

Let's add our own customised 'User Picker' field called 'Tester' to allow us to select a specific person for testing in the QA step.

Click the '**Custom Fields**' option under 'Issue Fields' in the 'Administration' tab.

Create a new custom field of type 'User Picker' and provide a 'Field Name' of 'Tester'. Leave other fields at their displayed defaults and click on 'Finish'. When presented with the 'Associate field Tester to screens' page, just click on 'Update' — do not select any screens at this stage (we're going to add a new screen in the next step). Let's repeat that process exactly but this time name this 'User Picker' custom field 'Reviewer'.

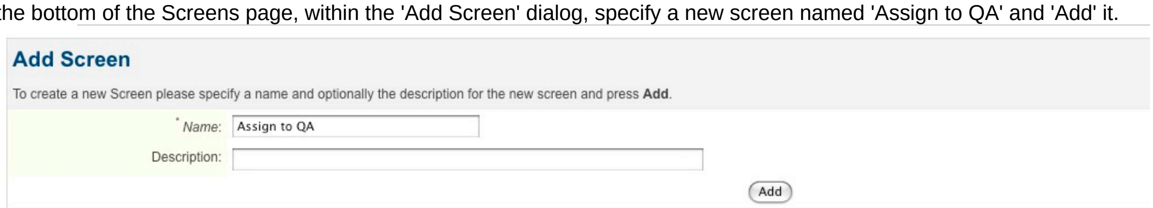


Step 2: Add New Screen:

We can now configure JIRA to create a screen for displaying our new field.

Click on '**Screens'** link under "Issue Fields" in the JIRA Administration area.

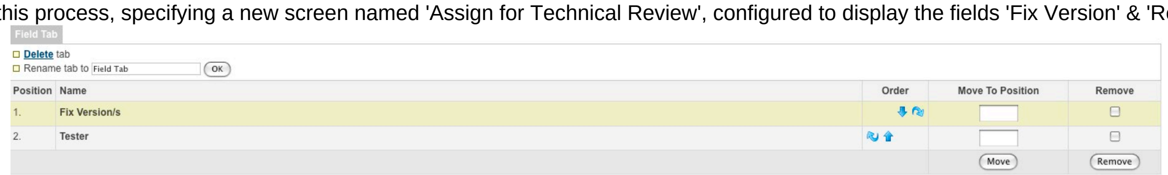
Towards the bottom of the Screens page, within the 'Add Screen' dialog, specify a new screen named 'Assign to QA' and 'Add' it.



Now 'Assign to QA' is added in the screen list. Now click 'Configure' for that screen in the right most column named 'Operations'.

You will now be presented with the 'Configure Screen' page. Under 'Add Field', multi-select the fields named 'Fix Version' & 'Tester', and click 'Add'.

Repeat this process, specifying a new screen named 'Assign for Technical Review', configured to display the fields 'Fix Version' & 'Reviewer'.



Step 3: Add New Status:

We'll now add two new statuses that our issues can move through in our new workflow.

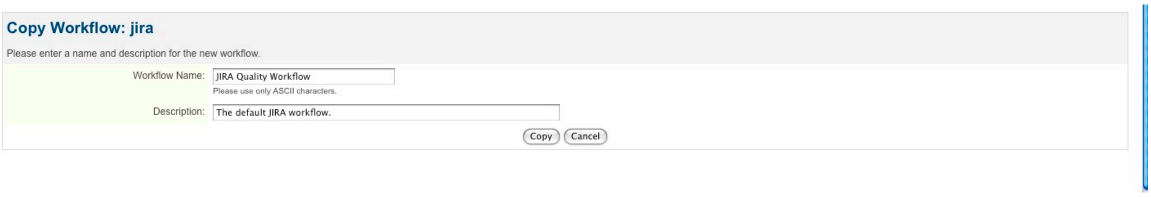
Click on '**Statuses**' under 'Issue Settings' and 'Add new status' named 'Technical Review'. If you wish, you can change the icon for the new status by clicking on 'select image'. Let's repeat the process for our second status, this time, 'Add new status' named 'Quality Review'.

Step 4: Workflows:

We have now completed all the prerequisites for my workflow. We'll now create the new workflow that will incorporate all the changes we have made so far.

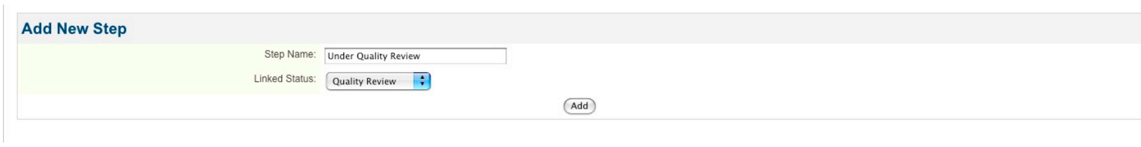
It's recommended, especially for new students of JIRA workflow configuration, that you copy an existing workflow and then start editing it, rather then creating one from scratch.

Click on the '**Workflows**' link under 'Global Settings'. Find the **jira** workflow and select 'Copy' from the rightmost 'Operations' column. Edit the 'Workflow Name' to 'JIRA Quality Workflow' and edit the description to something appropriate.



We'll add two new steps, 'Technical Review' and 'Quality Review', and choose the appropriate status for each.

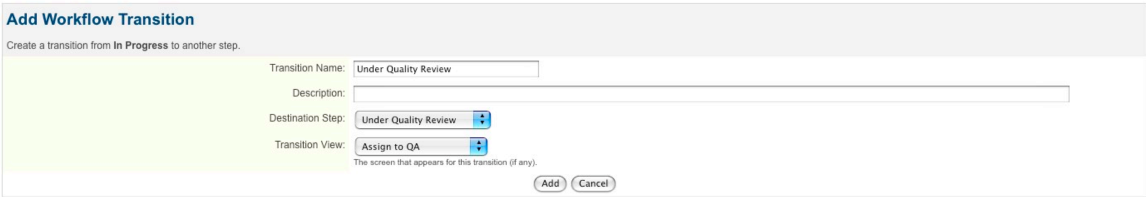
Click on 'Steps', again in the 'Operations' column. In the 'Add New Step' dialog, add a 'Step Name' called 'Technical Review' and select the matching 'Linked Status', 'Technical Review'. We'll repeat this process, this time adding a new step called 'Quality Review' with a matching 'Linked Status' of 'Quality Review'.



Our next step is to add/modify the transitions according to our original flowchart.

I will be adding a transition to the 'In Progress' step, to reflect the new options that will be available to a user from the In Progress step (moving to a Technical Review). While adding transitions you can specify a transition view also — a screen presented to the user when they click on a specific workflow action or 'transition'. We'll also add transitions to our 2 new steps ('Technical Review' & 'Quality Review').

For the 'In Progress' workflow, select 'Add Transition' under the 'Operations' column. Add a 'Transition Name' of 'Conduct Technical Review', leave the 'Description' field blank, specify a 'Destination Step' of 'Technical Review' and finally set the 'Transition Step' to 'Assign for Technical Review'.



Let's add two transitions for the Technical Review using these settings:

- Transition Name: More Work Required, Description: leave blank, Destination Step: In Progress, Transition View: No view for this transition
- Transition Name: Proceed to Quality Review, Description: leave blank, Destination Step: Quality Review, Transition View: Assign to QA

We'll also add two transitions for the Technical Review using these settings:

- Transition Name: More Work Required, Description: leave blank, Destination Step: In Progress, Transition View: No view for this transition
- Transition Name: Resolve Issue, Description: leave blank, Destination Step: Resolved, Transition View: Resolve Issue Screen

We'll also delete a workflow step, so you can see how that is done. Let's delete the 'Reopened' workflow step.

If you want to remove any of the steps from the workflow, you need to make sure it is not used as a transition for any other step. We'll need to remove the transitions to 'Reopened' from the 'Resolved' and 'Closed' issue steps.

Click on 'Delete Transitions' on both the 'Resolved' and 'Closed' steps and delete the 'Reopen Issue' transitions. You will now see a new 'Operation' called 'Delete Step' appear for the 'Reopened' step. Click on 'Delete Step' and confirm on the next screen by selecting 'Delete'.

Your workflow should now look like this:

Step Name (id)	Linked Status	Transitions (id)	Operations
Open (1)	Open	Start Progress (4) >> In Progress Resolve Issue (5) >> Resolved Close Issue (2) >> Closed	Add Transition | Delete Transitions | Edit | View Properties
In Progress (3)	In Progress	No technical Review Required. (831) >> Under Quality Review Implemented (841) >> Under Technical Review	Add Transition | Delete Transitions | Edit | View Properties
Resolved (4)	Resolved	Close Issue (851) >> Closed Reopen Issue (861) >> Open	Add Transition | Delete Transitions | Edit | View Properties
Closed (6)	Closed	Reopen Issue (3) >> Open	Add Transition | Delete Transitions | Edit | View Properties
Under Technical Review (9)	Technical Review	Request Quality Review (871) >> Under Quality Review More Work required. (911) >> In Progress	Add Transition | Delete Transitions | Edit | View Properties
Under Quality Review (10)	Quality Review	Resolve Issue (901) >> Resolved Not Fixed (921) >> In Progress	Add Transition | Delete Transitions | Edit | View Properties

Step 5: Specify Workflow Transition Conditions

Another powerful workflow feature of workflow transitions is their ability to support conditions/validators/Post Functions.

Suppose I want to add a condition that only the current assignee can move issues into 'Technical Review' or 'Quality Review'.

In the 'View Workflow Steps' of our current workflow, in the 'In Progress' step, click on the 'Conduct Technical Review' transition and click the 'Add' link on the 'Conditions' tab. Select the 'Only Assignee Condition' and click 'Add'. Go back to 'View workflow steps' and repeat this same procedure for the 'Proceed to Quality Review' transition on the 'Technical Review' step.

Step 6: Activate The Workflow

Now my workflow is ready to use — I just need to tell JIRA where I want to use it, based on the issue types and projects that I want to use this workflow in.

Workflow schemes define which issue types use what workflow. Let's configure that now.

Click on the '**Workflow Schemes**' link under 'Schemes' in the JIRA Administration area. Click on 'Add workflow scheme' and add a workflow scheme named 'Software Development Workflow'.

We can now associate this workflow scheme with the relevant issue types for our 'Software Development' Project. In this case, I am going to assign this workflow scheme for use with all issues in our project. On the same Workflow Schemes page, on the 'Software Development Workflow', select 'Workflows' from the 'Operations' column. Under the 'Edit Workflows for Software Development Workflow' panel, select 'Assign a workflow'. On the next screen, under 'Add Workflow to Scheme' panel, specify the 'Issue Type' as 'All Unassigned Issue Types' and set the 'Workflow' to 'JIRA Quality Workflow'. Although in this case we are specifying the workflow for all issue types, this is where you could assign specific workflows to specific issue types.

We can now associate this issue workflow with an existing or new project. In this case, we'll create a new project. Firstly follow the steps outlined here to create your new project. Then go to the 'Projects' link under the 'Projects' section of JIRA's administration and click on the name of your new project. On the next screen, click on '(Select)' under Workflow Scheme. Next choose the 'Software Development Workflow' Scheme and finally click the 'Associate' button.

JIRA's flexible workflow engine makes almost anything possible and with great power comes great responsibility.

Creating an Unassigned Issue

You can choose to leave new issues unassigned. This can be achieved by altering the 'Allow Unassigned Issues' flag in the configuration options. To do this go to the General Configuration page of the **Administration** section. Now simply edit the configuration and turn the 'Allow Unassigned Issues' flag on. If a project already exists prior to making this change, please make sure to edit the project and change the "Default Assignee:" to be "Unassigned." Otherwise, the default assignee will continue to be whoever was originally assigned to the project. For more detail please refer to the documentation relating to this function.

This function is not enabled by default, as different companies tend to have different approaches to handling issues. We have found that many of our customers prefer to have issues always assigned to an owner, to ensure that somebody is responsible for its handling and resolution.

Creating Issues via direct HTML links

> JIRA 4.1+ now uses form tokens as an additional level of security against cross-site request forgery. See Form Token Handling for details on how your external HTML form will handle form tokens

If you would like your users to create issues from another site, you can by putting links to your JIRA's create issue page. You can also populate the fields on the page with values to select the project, the issue type or even the summary of the issue. This document will detail how to construct theses links and how to populate the fields. This feature is available from JIRA 3.5 onwards.

How to construct the link

The minimal HTML link to create issues has the following structure:

```
<a href="[JIRA BASE URL]/secure/CreateIssueDetails!init.jspa?[ARGUMENTS]">[DESCRIPTION]</a>
```

where

Component	Description	Example
[JIRA BASE URL]	The Base URL of the JIRA you wish to create issues in	http://jira.atlassian.com
[ARGUMENTS]	List of key value pairs separated by '&' which represent the field and its value to be set in the create issue screen	pid=10420&issuetype=4
[DESCRIPTION]	The link description visible to users	create issue in Test Project

JIRA Base URL

This Base URL is the same as the JIRA Base URL you wish to create issues in. This can be found under the admin section -> General Configuration -> Settings. For example, http://jira.atlassian.com is the base URL of the JIRA running at Atlassian.

The Arguments

The list of key value pairs included define which fields will have what values set. The argument list has the following properties:

- Each key value pair is separated by an '&'
  - **For Example:** [keyValuePair]&[keyValuePair]&[keyValuePair]...
- Each key value pair has the form 'key=value' where key is a field name and the value is the desired value to be set for its corresponding field
  - **For Example:** 'pid=10420&issuetype=1&summary=helloWorld&description=greetings'...
- The list must comply with HTML link syntax - that is all characters must be escaped.
  - Characters like space cannot be used directly, they must be encoded (escaped). Hence to use a space, we would replace the space with a '+' or '%20' which is the space equivalent. An excellent *HTML URL-encoding reference* listing all the characters and their corresponding encoded symbol can be found here
  - **For Example:** 'summary=This+is+a+summary%20with%20escaped+spaces'

As you can see, constructing the argument list is relatively simple. All we need is the name of the fields we want to set values for, and just structure it as above.

Fields thats not set will simply be assigned their normal default values. And the issue is not created until the user submits the form (this includes a validation check to confirm the field values are correct).

Finding out the field names and its possible values

The key in the key-value pair is the fields name, and to set a value for that field, we first need to know its name. The name of the field can be found by examining the source code of the page in which the field is in (To view the source code of a page, right click on the browser and select 'View source' or alike). Each field has a *name* attribute which represents the fields name. So all you need to do is find that attribute.

To find the possible values you can set is a bit more tricky. For any fields which accept plain text (such as summary, description and environment) there are no restrictions. However for other fields (such as Project, Issue Type, etc which take in Id) will require you to find the Id values. The range of Id values you can set can be found examining the same source code you found the field name from.

For example, the following is the HTML source code from the create issue page. From this we know that the Components field has the key *'components'* with values *'10013'*, *'10014'* and *'10015'* for each of the 3 components.

```
...
<select multiple name="components" id="components" size=" 3 ">
  <option value="-1">Unknown</option>
  <option value="10013" title="New Component 1  - ">New Component 1</option>
  <option value="10014" title="New Component 2  - ">New Component 2</option>
  <option value="10015" title="New Component 3  - ">New Component 3</option>
</select>
...
```

The following table shows a sample list of the standard JIRA fields with their name (key), the type of value expected and an example of the value

Display Name	Key	Value Type	Value Examples
Project	pid	Project Id	' 10420'
Issue Type	issuetype	Issue Type Id	standard JIRA issue type values range from '1' to '4'
Summary	summary	Plain Text	'issue+created%20via+link'
Priority	priority	Priority Id	standard JIRA priority values range from '1' to '5'
Due Date	duedate	Date	'15-Dec-2005' - may have different format depending on your JIRA date settings
Components	components	Component Id	'10014'
Affects Version/s	versions	Version Id	'10015'
Fix Version/s:	fixVersions	Version Id	'10015'
Assign To	assignee	Username	'admin' or 'sam@atlassian.com'

Reporter	reporter	Username	'admin' or 'sam@atlassian.com' To have the reporter field default to the currently logged in user, the user must be logged in and must not have the `Modify Reporter` permission.
Environment	environment	Plain Text	'this+is+the+environment'
Description	description	Plain Text	'this+is+the+description'

Custom Fields
Custom Fields key and value can be found by examining the source code also. There name/key are prefixed by 'customfield_' followed by their custom field id. For Example: 'customfield_10000'

Examples

Here are some simple examples to help you on your way. These examples provide links to create issue in JIRA Atlassian Test Project.

Source Code

```
To create an improvement issue in the Test project, click
<a href="http://jira.atlassian.com/secure/CreateIssueDetails!init.jspa?pid=10420&issuetype=4">here</a>
```

```
To create a task with summary 'say hello world', click
<a href="http://jira.atlassian.com/secure/CreateIssueDetails!init.jspa?pid=10420&issuetype=3&summary=say
```

```
To create a task with multiple values selected for a field, click
<a
href="http://jira.atlassian.com/secure/CreateIssueDetails!init.jspa?pid=10420&issuetype=3&summary=say+he
```

```
A more detailed example to
<a href="http://jira.atlassian.com/secure/CreateIssueDetails!init.jspa?pid=10420&issuetype=2&summary=detailed+example
&description=description+goes+here&components=10240&duedate=7%2dDec%2d2005
&customfield_10010=this+is+a+custom+field">
create an issue.</a> Has description, components, due date and a custom field preset.
```

Current Reporter Browse Project Permission

Some JIRA installations have a use-case where they want a user to only see projects they **can** report issues in. Normally when you add the "Current Reporter" group to the "Browse Project" permission of one project, this project instantly becomes visible to **all** users (via the project table portlet), even if they are unable to report an issue in that project or not.

This guide is for those who want a user to only see issues they've reported **and** also not see any projects that's irrelevant to them (they are unable to create issues for). This permission is available as an optional permission type (since JIRA 3.2). You will need to uncomment the lines below in the file the `WEB-INF/classes/permission-types.xml`. Restart JIRA and this type will be available in your standard permissions page.

If you're running a WAR deployment, you'll need to rebuild the WAR after the change and redeploy. You may need to remove your old exploded WAR directory for the new one to take effect.

```
<type id="reportercreate" enterprise="true">
    <class>com.atlassian.jira.security.type.CurrentReporterHasCreatePermission</class>
</type>
```

When using this special permission, users will only see projects where thy have create permission to and issues within that project where they are the reporter.

Why isn't this included in JIRA by default?
This permission is deliberately commented out of the `permission-types.xml` file. This is to ensure that only advanced JIRA administrators are able to access it. There are two reasons behind this:

- Firstly, the permission itself is used in fairly sophisticated scenarios.
- Secondly, the implementation of this permission is potentially dangerous. For example, it is possible to put your JIRA instance in an infinite loop by mapping this permission to the Create Issue function.

Custom Field Column not Visible in Issue Navigator

Symptoms

The Issue Navigator is configured to display an extra column - Custom filed and the column appears every time you go to the "Configure your Issue Navigator" view, and allows you to move it to the different location, in the end it never shows when just looking at the filter in Issue Navigator.

Cause

The reason you are not seeing the custom field column in your Issue Navigator is that since it is constrained either by Issue Type or Context you will only ever see it if all the issues in the view are of the same issue type and that issue type is the one your custom field is configured against.

The reason for this is that it can be misleading to show a column with no values for issues that can not even have that value assigned.

The improvement request regarding this behaviour is being tracked at JRA-9367. Please add your comments to the discussion, vote on it and add yourself as a watcher for future updates.

Resolution

A possible workaround this restriction/limitation is to configure the custom fields with the global context or for all issue types.

CVS ssh Jira Integration

CVS :ext: ssh Jira Integration

The following information is probably only relevant to Linux/Unix/OSX/Cygwin environments.

CVS_RSH environment variable

In order to use the :ext: method for connection to CVS, the CVS_RSH environment variable needs to be set in the environment that runs JIRA. It should be set to the path to the ssh binary.

put this in your profile

```
CVS_RSH=`which ssh`
export CVS_RSH
```

Problems Authorising when command line works

One user reported the following:

> *The problem was found to be the UsePAM directive in sshd_config on the cvs server(Debian-Sarge) - this needs to be disabled (which it wasn't) with the PasswordAuthentication enabled.*

Disabling Form Token Checking

Form token checking can be switched off at a system wide level by updating the jira-application.properties file with the following:

You will need to restart your JIRA installation for this change to take place.

Please refer to the Form Token Handling documentation for more information about how this feature is implemented in JIRA.

Displaying a Field Based on Another Field Selection

In Atlassian's support JIRA, when a user creates an issue with "Critical" priority, it will display the "Priority Explanation" field.

This can be achieved by performing the following steps:

1. Create a "Free Text Field (unlimited text)" custom field type (Administration -> Issue Fields -> Custom Fields)
2. Fill in the following text into the "Description" field:

```
<script type="text/javascript">
  priority = document.getElementById('priority');
  if (priority) {
   target = document.getElementById('customfield_10420FieldArea');
   // Hide the target field if priority isn't critical
   if (priority.value != 2) target.style.display='none';

   priority.onchange=function() {
    if (this.value == 2) {
                      target.style.display = '';
                   } else {
               target.style.display='none';
    }
   }
  }
 </script>
```

3. Make sure to change the custom field id and priority id.

Editing a custom field option

At the moment it is not possible to rename an option of a custom field, e.g. a Select List custom field. This is fairly easy to do using SQL. Please shutdown JIRA then execute:

```
update customfieldoption set customvalue = 'New Option' where CUSTOMFIELD = <cfid> and id = <id>;
```

To rename the option. Where `<cfid>` is the id of the custom field and `<id>` is the id of the option you would like to rename.

To get a list of all custom fields do:

```
select * from customfield;
```

Then update all issues with this value:

```
update customfieldvalue set STRINGVALUE = 'New Option' where CUSTOMFIELD = <cfid> and STRINGVALUE
= 'Old Value';
```

Replace `<cfid>` with the custom field's id and 'Old Value' with the text value of the option.

Then restart JIRA and **re-index** the data (Administration -> System -> Indexing).

For details on editing the custom field tables, see the custom field tables documentation.

Escalating issues (or sending email notifications) when the set turnaround time is exceeded

Can JIRA send notifications based on a set issue turnaround time being exceeded? Can it automatically escalate issues that have exceeded a preset turnaround time?

No, not out-of-the box — but this is exactly what services are for. In particular, a Jelly script can be written to find and escalate relevant issues, and the Jelly script can be run every day via a Jelly Service.

Field Layout Schemes in JIRA 3.x

Unknown macro: {version-warn}

JIRA 3.1.1 or earlier

Field Layout Schemes in JIRA 3.x

This document describes creating field layout schemes per issue type per project in JIRA up to (but not including) version 3.2.

Field Layout Schemes

Through the use of Field Layout Schemes, it is possible to configure the visible and required fields per issue type per project.

For example, the issue type **Bug** within project **A** could be associated with one field layout while the issue type **Improvement** also in project **A** could be associated with another field layout. Furthermore, the project default field layout (i.e. all issue types without an associated layout within a project) could be associated with yet another field layout. In this way, each issue type can be associated with a configurable field layout for each project.

System Field Layout Scheme

The **System Field Layout Scheme** governs the field layout for all issue types in all projects not associated with a specific field layout.

This field layout can be edited by navigating to the following **Administration** section:

Administration -> Issue Fields -> Field Layout (System)

The field layout is displayed and can be edited as required.

Creating a Field Layout Scheme

In order to create a specific field layout association for an issue type within a project, it is necessary to create a field layout scheme:

Administration -> Issue Fields -> Field Layout Schemes -> Add Issue Field Scheme

Once created, it is then possible to configure the field layout as required.

Field Layout Association per Issue Type per Project

With a custom field layout, it is possible to associate the field layout with a particular issue type within a particular project.

By navigating to the **Project Administration** section:

Administration -> Project - > <Project Name>

it is then possible to manage the field layout associations for that project by selecting the **Manage** link within the **Field Layout Schemes** table or within the project summary table. From here, it is possible to create a default field layout association for all unassigned issue types within the project or to create a field layout association with a specific issue type for the selected project.

The issue type specific association will overwrite the project default association.

Fields Allowing Custom HTML or JavaScript

There are several ways to inject JavaScript or HTML into JIRA:

1. Edit the custom field's description. See Displaying a Field Based on Another Field Selection as an example.
2. Add JavaScript to the header, by modifying a JSP from the file system. See Adding JavaScript to all pages for Google Analytics as an example.
3. You can add HTML or Javascript in the Announcement Banner.
4. Edit the field description in the Field Configuration.

Finding the Id for Issue Types

It's often useful to know what the Issue Type IDs when configuring a Mail Handler to create issues from email. Here's how:

1. In JIRA, click `Administration > Issue Settings > Issue Types`
2. JIRA will display issue type's id appended within the URL on the browser's status bar by hovering above the **Edit** operation link. For example, the "id" in this link represents the id of the issue type:
`http://localhost:8090/secure/admin/EditIssueType!default.jspa?id=1`

Group Name Guidelines for JIRA

We do not have a formal set of naming conventions for groups in JIRA. However we do have some current, or recently resolved, issues related to group names in JIRA, and based on those issues, we suggest at least the following guidelines:

- Don't use commas: JRA-12675
- Don't use ampersands (&): JRA-13780

- Keep group names to less than 60 characters: JRA-13329
- Don't use group names with only one character in JIRA versions prior to 3.12.3: JRA-14495
- Don't use '#' characters in JIRA versions prior to 3.12: JRA-13509
- We suggest standardising on lower case names for groups: JRA-13798, JRA-5434

Beyond those guidelines, our more general recommendation is to keep group names simple, preferably restricting them to alphanumeric characters, and '-', '_' or a space for word separators - e.g. "jira-users".

If you use non-ASCII characters in your group names, ensure that your database character encoding scheme supports those characters. For MySQL, ensure that the database has a character set encoding of UTF8 by following our instructions for creating the database.

If you are integrating JIRA with LDAP, ensure that you conform to any naming restrictions imposed by your LDAP server.

How can I control the editing of issue fields via workflow?

Introduction

Please note that the following instructions **do not** provide a complete solution to Field Level Permissions, but allow to control who can **edit** particular fields. This is achieved with the help of Transition Conditions in a Workflow.

These instructions **do not** provide a solution for restricting who can see the values of fields. Users who have permissions to view an issue, will be able to see the values of these fields for that issue, search by them, receive notifications when these fields change, etc.

Before you read these instructions, it is important to have a good grasp of how Workflows fit into JIRA. A good source of information on Workflows can be found in JIRA's documentation: Configuring Workflow

You should also familiarise yourself with how Screens work in JIRA: Configuring Fields and Screens

Instructions

Please note that the ability to edit some System Fields is already protected by a permission:

System Field	Permission
Fix Version	Resolve Issue
Assignee	Assign Issue
Due Date	Schedule Issue
Reporter	Modify Reporter
Security Level	Set Issue Security

The easiest thing to do for the above fields is to use Permission Schemes to control who can manipulate them. For more information on permissions please see: Managing Project Permissions

However, if the field you are trying to protect is not already protected by a permission, e.g. a custom field, you can use a workflow transition. This transition will allow certain users to only edit certain items of an issue without transitioning to another step of the workflow.

Please follow these instructions:

1. Create two Screens.
2. Using Screen Schemes make sure one of the Screens is mapped to the View Issue and Edit Issue operation. This screen should contain all fields, including the protected fields. Otherwise, no one will be able to see values of fields on the View Issue page.
3. Create another Screen and map it to the Create Issue operation in the Screen Scheme. This screen should not contain the protected fields.
4. Create a workflow transition that goes to the same step as it's original step. Ensure the transition uses the same screen as the Create Issue operation.
5. Create a new group or project role for users who **should not** be able to edit protected fields.
6. Protect the transition using the "User Is In Group" or "User Is In Project Role" conditions.
7. Place users who should not be able to manipulate protected fields into the new group or project role.
8. Edit the Permission Scheme of the project in question and ensure these users do not have the Edit Issue permission. Grant other permission that you deem needed to this group or project role.
9. Ensure that a transition such as this exists for all statuses (steps) in the workflow where the protected fields need to be manipulated. All of these transitions can use the same Screen.
10. Users who are members of the group or project role will be able to execute the transition to edit fields. Other users, who should be able to edit protected fields should use the normal Edit Issue operation.

Please note that the above setup will not allow the protected fields to be populated when issues are created or edited.

Using a Workflow to control edit of an issue by changing Workflow XML

You can use a workflow "transition" to allow certain users to only edit certain fields of an issue without transitioning to another step of the workflow. This page outlines how to achieve this using direct Workflow XML manipulation. If you are not comfortable with directly editing Workflow XML please see How can I control the editing of issue fields via workflow?.

First note that JIRA's workflow editor (as of Jira 3.4.2) uses the term "transition" where as the OSWorkflow documentation refers to the same element as an "action".
Since, this article primarily deals directly with the XML of the workflow instead of the workflow editor, the term "action" will be used.

As mentioned above, this article assumes knowledge of how to write an OSWorfkow in XML.

There are two items that allow us to use the workflow in this way:

- JIRA lets users edit an issue via Workflow actions even if they don't have the "Edit Issue" permission in the permission scheme
- OSWorkflow doesn't force you to transition to a different step, when executing an action

First, you will need to create a screen containing all the fields you want (and only those fields) the user to be able to edit.

Next you need to create the XML document for the workflow. An easy way to get started is to export a workflow from JIRA as XML and then edit that.

In each step that you want a specific user group to be able to edit the issue, create an action with the following attributes:

- The 'view' should be "fieldscreen"

- "jira.fieldscreen.id" should be set to the screen id that contains the fields you want the user to be able to edit

(if you don't know the ID of the screen you want to use, just reassign the screen, after importing the XML, using JIRA's workflow editor).

- A condition of type "class" with the "class.name" as com.opensymphony.workflow.util.OSUserGroupCondition* The "group" as the JIRA user group the current user must be a member of in order to execute this action
- The resulting step set to the same ID as the step that contains the action

The following is an example:

```
<action id="2003" name="Edit Issue" view="fieldscreen">
      <meta name="jira.fieldscreen.id">10010</meta>
      <meta name="jira.description">Edit Issue (for Client)</meta>
      <restrict-to>
        <conditions>
          <condition type="class">
            <arg name="group">ourclients</arg>
            <arg name="class.name">
              com.opensymphony.workflow.util.OSUserGroupCondition
            </arg>
          </condition>
        </conditions>
      </restrict-to>
      <results>
        <unconditional-result old-status="Not Done" status="Done" step="2">
          <post-functions>
            <function type="class">
              <arg
name="class.name">com.atlassian.jira.workflow.function.issue.UpdateIssueStatusFunction</arg>
            </function>
            <function type="class">
              <arg
name="class.name">com.atlassian.jira.workflow.function.misc.CreateCommentFunction</arg>
            </function>
            <function type="class">
              <arg
name="class.name">com.atlassian.jira.workflow.function.issue.GenerateChangeHistoryFunction</arg>
            </function>
            <function type="class">
              <arg
name="class.name">com.atlassian.jira.workflow.function.issue.IssueReindexFunction</arg>
            </function>
            <function type="class">
              <arg
name="class.name">com.atlassian.jira.workflow.function.event.FireIssueEventFunction</arg>
              <arg name="eventType">updated</arg>
            </function>
          </post-functions>
        </unconditional-result>
      </results>
    </action>
```

Note that version 2.8 of OSWorkflow allows common actions with a step value of "0" which should result in no change of the step value after executing the action.

However, OSWorkflow 2.8 won't be available in Jira until Jira release 3.7 (see http://jira.atlassian.com/browse/JRA-8902)

Using Templates to control edit of an issue

Overview
You can control who can edit each field by making small changes to the Velocity template files used to display fields in the Edit Issue screen.

One of the points of pain with JIRA is trying to control who can edit particular fields of an issue, as discussed in JRA-1330. Various suggestions have been made there, such as using a workflow, but the page How to create a new Custom Field Type gave me the idea of simply changing the velocity template that is used to display a field to control who can edit the field's values. This approach also provides enough flexibility to make other changes such as who is permitted read the contents of a field.

Steps

1. Decide which field you want to control, e.g. Fix Versions
2. Find the template that is used to generate that field in the Edit Issue screen. The template is probably one of the files `atlassian-jira/WEB-INF/classes/templates/jira/issue/field/*-edit.vm`, e.g. `versions-edit.vm` in this case If you have the source code, then you can confirm exactly which template is used by looking in `jira/src/java/com/atlassian/jira/issue/fields` for the field type you are interested in.
3. Note that some templates are used by more than one field, e.g. the `versions-edit.vm` is used for both the Affects Versions and Fix Versions fields.
4. Find the field id of the field you want to control, e.g. for Fix Versions the field id is `fixVersions`. I actually found this out by simply tweaking the template to print out the $field.id, but it's really defined in `atlassian-jira-enterprise-3.8-source/jira/src/java/com/atlassian/jira/issue/IIssueFieldConstants.j` .
5. Make the changes and restart JIRA.

Changes

This example shows the changes made to `versions-edit.vm` to control who can edit the Fix Versions field.

```
#controlHeader ($action $field.id $i18n.getText($field.nameKey) $fieldLayoutItem.required
$displayParameters.get('noHeader'))
```

Here is where the changes start:

```
<!-- By default, the fields are writeable -->
#set ($readonly = "no")
#if ($field.id == "fixVersions")
  <!-- This example is restricting who can change the Fix Version to
       members of the fix-version-writers group -->
  #if ($authcontext.user.inGroup('fix-version-writers'))
    #set ($readonly = "no")
  #else
    #set ($readonly = "yes")
  #end
#end
```

The following line is part of the original template

```
#if ($versions && !$versions.empty)
```

but these are the lines that change what is displayed. A "break" command would be useful in Velocity.

```
#if ($readonly == "yes")
    <!-- Display the field value -->
    #if ($currentVersions)
      #foreach ($cv in $currentVersions)
        #foreach ($version in $versions)
   #if ($cv == $version.key)
     $textutils.htmlEncode($version.value)<br>
          #end
        #end
      #end
    #else
      <!-- The Fix Version has not been set -->
      Unknown<br>
    #end
```

All the other lines in this file are unchanged except for the closing #end line

```
#else
    <select multiple name="$field.id" size="#minSelectSize ($versions 1 6)" id="$field.id">
        #if (!$fieldLayoutItem.required)
        <option value="$!unknownVersionId"
        #if ($currentVersions && $currentVersions.contains($!unknownVersionId))selected#end
        >$i18n.getText('common.words.unknown')</option>
        #end
        #foreach ($version in $versions)
            #if ($version.key == $unreleasedVersionId || $version.key == $releasedVersionId)
                #if ($optGroupOpen)
        </optgroup>
                #else
                    #set ($optGroupOpen = true)
                #end
        <optgroup label="$textutils.htmlEncode($version.value)">
            #else
            <option value="$!version.key"
                #if ($currentVersions && $version &&
$currentVersions.contains($version.key))selected#end
                >$textutils.htmlEncode($version.value)</option>
            #end
        #end
        #if ($optGroupOpen)
        </optgroup>
        #end
    </select>
  #end  <!-- readonly -->
#else
    $i18n.getText('common.words.unknown')
#end

#controlFooter ($action $fieldLayoutItem.getFieldDescription() $displayParameters.get('noHeader'))

#if ($archivedVersions && !$archivedVersions.empty)
    #controlHeader ($action "" $i18n.getText($archivedVersionsTitle) false false)

    #foreach ($version in $archivedVersions)
        <a
href="$req.getContextPath()/secure/IssueNavigator.jspa?reset=true&mode=hide&sorter/order=ASC&sorter/f
($velocityCount < $archivedVersions.size()),#end</a>
    #end

    #controlFooter ($action "" false)
#end
```

Diff

In case that was a bit too detailed, here is the diff for JIRA 3.8.1:

```
[jira@toolsdev plugins]$ diff -c
/data/jira/jira/atlassian-jira-enterprise-3.8-source/jira/src/etc/java/templates/jira/issue/field/ver
~/atlassian-jira-enterprise-3.8-standalone/atlassian-jira/WEB-INF/classes/templates/jira/issue/field/
/data/jira/jira/atlassian-jira-enterprise-3.8-source/jira/src/etc/java/templates/jira/issue/field/ver
2007-03-09 15:49:33.000000000 -0800
---
/data/jira/jira/atlassian-jira-enterprise-3.8-standalone/atlassian-jira/WEB-INF/classes/templates/jira/iss
2007-07-04 09:24:52.000000000 -0700
***************
*** 1,6 ****
--- 1,34 ----
  #controlHeader ($action $field.id $i18n.getText($field.nameKey) $fieldLayoutItem.required
$displayParameters.get('noHeader'))

+ <!-- By default, the fields are writeable -->
+ #set ($readonly = "no")
+ #if ($field.id == "fixVersions")
+   <!-- This example is restricting who can change the Fix Version to
+        members of the fix-version-writers group -->
+   #if ($authcontext.user.inGroup('fix-version-writers'))
+     #set ($readonly = "no")
+   #else
+     #set ($readonly = "yes")
+   #end
+ #end
+
  #if ($versions && !$versions.empty)
+   #if ($readonly == "yes")
+     <!-- Display the field value -->
+     #if ($currentVersions)
+       #foreach ($cv in $currentVersions)
+         #foreach ($version in $versions)
+         #if ($cv == $version.key)
+           $textutils.htmlEncode($version.value)<br>
+           #end
+         #end
+       #end
+     #else
+       <!-- The Fix Version has not been set -->
+       Unknown<br>
+     #end
+   #else
+     <!-- All the other logic in this file is unchanged -->
      <select multiple name="$field.id" size="#minSelectSize ($versions 1 6)" id="$field.id">
          #if (!$fieldLayoutItem.required)
          <option value="$!unknownVersionId"
***************
*** 25,30 ****
--- 53,59 ----
          </optgroup>
          #end
      </select>
+   #end  <!-- readonly -->
  #else
      $i18n.getText('common.words.unknown')
  #end
```

Pros

- Simple changes to one .vm file per field to be controlled, no recompilation of source code necessary
- Uses the existing Jira group mechanism

Cons

- Need to manually apply changes to updated versions of JIRA. Happily, the changes are cleanly localised.
- Only controls fields edited using the browser, not with the SOAP API
- Need some familiarity with the Velocity template language

Troubleshooting

If you are having trouble with a hidden value being reset when the issue is edited, you can try passing it back like this:

```
<input type=hidden name="$customField.id" id="$customField.id" value="$value">
```

This may occur when a user with no write-permission for a select field edits the issue.

How do I assign issues to multiple users

JIRA is designed so that issues must be assigned to a single individual to prevent tasks from being overlooked. A team lead or manager should assign issues out to individuals, or your users will pick from a list of issues that they have the option to take on.

However, if you want to configure JIRA to allow issues to be assigned to multiple users there are a few option for doing so:

- Managing Issues via a Queue
- Managing Issues via Group Ownership
- Managing Issues via a User Account
- Managing Issue via Sub-Tasks

It is easy to still setup a queue the a group can pick from, or affiliate an issue with group in addition to having it assigned to an individual within that group:

Managing Issues via a Queue

You can configure your JIRA project to assign issues to an 'Unassigned' "queue" by default, which your users can then pick issues from.

To do this, set up the following:

1. Configure your JIRA project to allow the 'default assignee' to be 'Unassigned' (see Defining a Project).
2. Ensure that 'Allow unassigned issues' is set to ON in your General Configuration settings (**Administration > Global Settings > General Configuration**).
3. Set any issues that you want to be in the queue to be 'Unassigned'.
4. Create a dashboard page with a filter that lists all 'Unassigned' issues, share the dashboard page and request that interested members of the group display the shared page on their dashboards. See Managing Multiple Dashboard Pages for instructions.

Managing Issues via Group Ownership

You can add a custom field to store which users and groups should be associated with a given issue. This is particularly useful for projects where a team owns all issues of a particular type.

To do this, set up the following:

1. Add a group picker custom field to your issues.
2. Configure an email notification in your project's notification scheme to be sent to the 'Group Custom Field Value'.

An issue can now be "assigned" to the group by selecting the appropriate group in the group picker. An email notification will be sent to the group.

Another option is to add a user picker custom field rather than a group picker, and assign multiple users to an issue. However, you will then have both the JIRA default user field and custom user field for your assignees.

Managing Issues via a User Account

You can create a JIRA user account to represent a group of people (e.g. 'developers') and assign issues to this user.

To do this, set up the following:

1. Create a JIRA user to represent the group (see Managing Users).
2. *(Optional)* Create an email mailing list for this group (not a JIRA function) and set the mailing list email as the JIRA user's email address.
3. Create a dashboard page showing issues assigned to this user, share the dashboard page and request that interested members of the group display the shared page on their dashboards. See Managing Multiple Dashboard Pages for instructions.

An issue can now be assigned the new "user" representing the group and your users can track the issues on their dashboards. If you have set up a mailing list, your users will also be notified by email.

Managing Issue via Sub-Tasks

If you have a task managed by different users then you are able to break the combined task into individual subtasks with their own single assignees.

How do I change the constraints on historical time parameters in gadgets?

A number of JIRA gadgets show historical data from your JIRA instance. You can generally configure the time constraints on this data via gadget parameters, i.e. how far back should data be retrieved? However, there are also JIRA-level constraints on how far back you can specify data to be retrieved, for performance reasons.

For example, the 'Time Since Issues' gadget allows you to specify how far back issue data should be retrieved via the 'Days Previously' parameter. However, if you try enter a value greater than 300, a validation message will display and you will not be permitted to save your configuration changes.

The fields that are used for these validations can be found in your `jira-application.properties` file in your JIRA installation directory:

```
jira.chart.days.previous.limit.yearly=36500
jira.chart.days.previous.limit.quarterly=22500
jira.chart.days.previous.limit.monthly=7500
jira.chart.days.previous.limit.weekly=1750
jira.chart.days.previous.limit.daily=300
jira.chart.days.previous.limit.hourly=10
```

To update these fields, simply locate them in `jira-application.properties`, update as desired, save your changes and restart your JIRA server.

How do I delete a user account?

Someone has left the company. How do I delete their user account if they have reported issues?

We recommend that you **deactivate** rather than delete a user's account. Deactivating a user's account will prevent that account from being used and being able to login, but will preserve their issues history.

- If you would like to **deactivate** a user's account, please read Deactivating a User's Account.
- If you would like to **delete** a user's account, please read Deleting a User's Account.

How do I disable Firebug for JIRA?

The Firebug add-on for Firefox can significantly degrade the performance of web pages. If JIRA is running too slowly (the JIRA dashboard, in particular), we recommend that you disable Firebug.

To disable Firebug for JIRA:

1. Open the '**Firebug**' pane in the Firefox tab that has JIRA running, by clicking the Firebug icon.
2. Click the down arrow next to the '**Net**' tab, and select '**Disable monitor**' for the URL of your JIRA instance (e.g. jira.atlassian.com)
3. Repeat Step 2 on the '**Console**' and '**Script**' tabs.

How Do I Use an SSL Certificate Generated Using openssl?

You have an SSL Certificate that was generated using openssl, and you would like to use it with JIRA.

You need to have both the signed ssl certificate and the private key that was generated using openssl. Then you convert the certificate + key pair to pkcs12 format using openssl:

```
[amyers@erdinger:ssl]$ openssl pkcs12 -export -in server.cert  -inkey server.key -out server.p12
```

When doing this, openssl should ask for a password, so remember whatever you enter here. This will convert the certificate (server.cert) and the private key (server.key) into a pkcs12 file (server.p12).

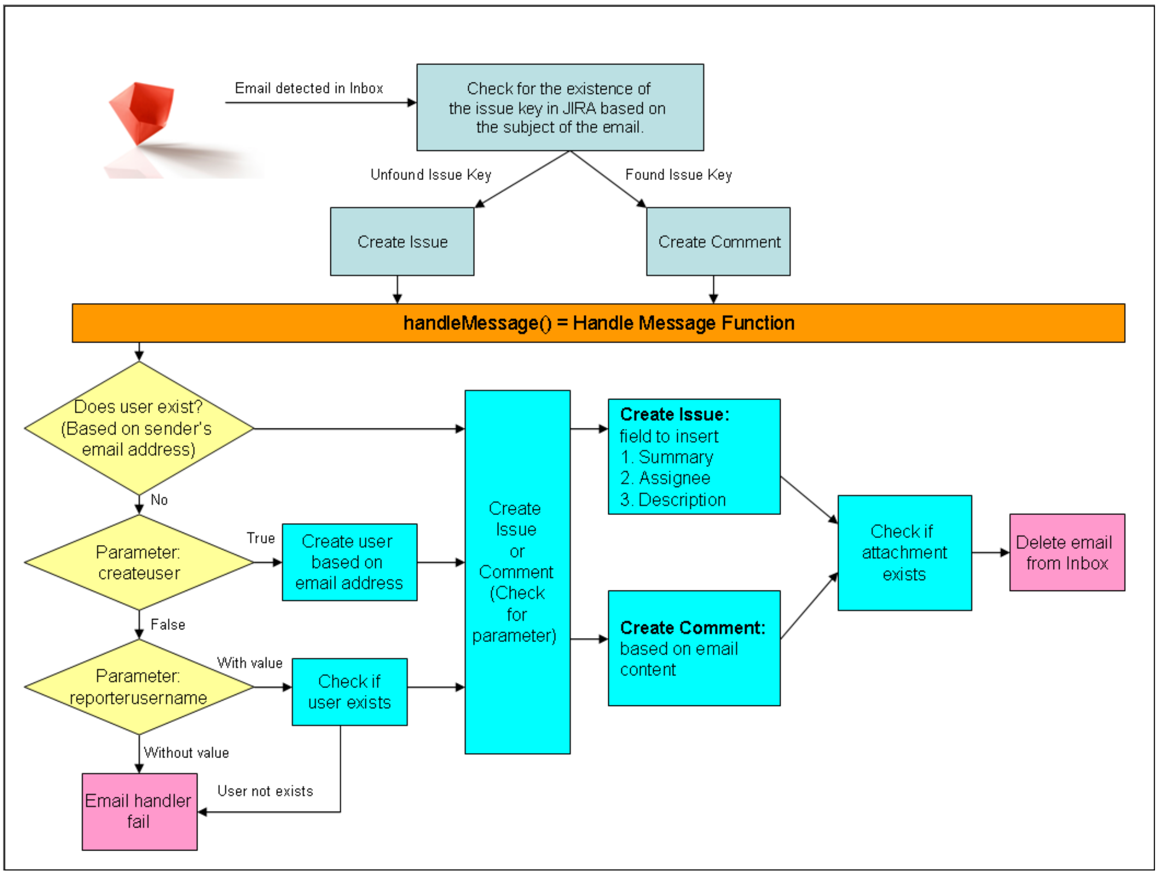
Next you simply need to configure tomcat to use the pkcs12 (.p12) file as its keystore by editing `$JIRA_HOME/conf/server.xml`:

```
<Connector port="8443" maxHttpHeaderSize="8192"
                   maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
                   enableLookups="false" disableUploadTimeout="true"
                   acceptCount="100" scheme="https" secure="true"
                   clientAuth="false" sslProtocol="TLS" SSLEnabled="true"
                   URIEncoding="UTF-8" keystorePass="changeit"
                   keystoreType="pkcs12" keystoreFile="/path/to/server.p12" />
```

The important thing to specify is that `keystoreType="pkcs12"`. The keystorePass is whatever password you gave when generating pkcs12 file, and the keystoreFile is the path to the file.

The process should be the same for Confluence (or indeed any other application running on Tomcat).

How the CreateOrCommentHandler works?



How to change the location of stdout and stderr logs

If JIRA is running as service in windows, stdout_*.log and stderr_*.log will be created, and over time, these files are rapidly growing and become large.

To change the stdout_.log and stderr_.log location such as D drive.

1. Uninstall the jira service.
2. Open `service.bat` with editor and find the parameter below:

```
set PR_LOGPATH=%CATALINA_BASE%\logs
set PR_STDOUTPUT=auto
set PR_STDERROR=auto
```

3. change `set PR_LOGPATH=%CATALINA_BASE%\logs` to any location you wish such as `set PR_LOGPATH=D:\logs`
4. Run `service.bat install JIRA_SERVICE_NAME` to install JIRA as service again.

How to clear the resolution field when the issue is reopened

In the default JIRA workflow, issues have their resolutions cleared upon re-opening an issue. This is important because many reports/filters could be inspecting for the presence of a *Resolution* to be considered resolved.

The *Resolution* field is typically cleared by setting a post-function in the workflow transition you'd like to have this occur. The function to use is Update Issue. The field to use is Resolution. The value to choose is None.

How to configure sub-task to have a specific screen?

By configuring a custom Issue Type Screen Scheme, it could able to have a specific screen for sub-task issue type. For example:

1. Create a screen via *Administration -> Issue Fields -> Screens* (e.g. Sub-task screen)
2. Create a Screen Scheme via *Administration -> Issue Fields -> Screen Schemes* (e.g. Sub-task Screen Scheme)
3. Configure this newly created screen scheme to have a 'sub-task screen' when creating issue
4. Create a Issue Type Screen Scheme via *Administration -> Issue Fields -> Issue Type Screen Schemes*5. Configure this newly created Issue Type Screen Scheme to have a 'Sub-task Screen Scheme' for 'sub-task' issue type
6. Associate this Issue Type Screen Scheme with the project

For more information on Issue Type Screen Scheme, please refer to this documentation:

- http://www.atlassian.com/software/jira/docs/latest/issuetype_screenschemes.html

Searching JIRA Knowledge Base

How to convert types using Jelly

Scenario

When programming in Jelly, you can get in a situation as illustrated by the following code snippet:

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib" xmlns:j="jelly:core">

<jira:CreateProjectRole name="QARole" description="QA role">
${jelly.role.id} ${jelly.role.name} ${jelly.role.description}
</jira:CreateProjectRole>

<j:set var="qaroleid" value="${jelly.role.id}"/>

<jira:AddPermission schemeId="0" permissions="Edit" type="projectrole" projectroleid=
"${qaroleid}"/>

</JiraJelly>
```

The goal here is to create a new Project Role and then set the appropriate Permissions to it. However, as the `projectroleid` and `qaroleid` variables are have not the same type, you should get an error like this:

```
Could not run script.
Extra Information: [hide]
Error: <JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib"
xmlns:j="jelly:core">10010 QARole QA role
Exception: org.apache.commons.jelly.JellyTagException: null:10:0: Cannot assign value of type
'java.lang.Long' to property 'projectroleid' of type 'java.lang.String'
java.io.PrintWriter@334cee
```

So `qaroleid`, which received a `java.lang.Long` value from the `jelly.role.id` context variable, should be converted to a `java.lang.String` type so it can be informed as `projectroleid` attribute when setting a Permission.

Problem

How can you convert types in Jelly?

Solution

You can use the `invoke` Jelly tag to call the method `toString` on the `jelly.role.id` context variable and store this value the in the `qaroleid` variable. So you should replace this line...

```
<j:set var="qaroleid" value="${jelly.role.id}"/>
```

... with this...

```
<j:invoke on="${jelly.role.id}" method="toString" var="qaroleid"/>
```

... and the script will work sucessfully.

You can also (just as an example matter) use the `new` Jelly tag to convert the `java.lang.String` value of the `qaroleid` variable into a `java.lang.Float` value and store it in the `qafloatvar` variable, as shown here:

```
<j:invoke on="${jelly.role.id}" method="toString" var="qaroleid"/>

<j:new var="qafloatvar" className="java.lang.Float">
<j:arg type="java.lang.String" value="${qaroleid}" />
</j:new>
```

You may find useful to look at these pages for more information on Jelly tags:

- Jelly - Tag Reference
- Jelly Scripting Hints

How to create a download link to a file

Symptoms

You can perform the following steps to create a download link to a file in JIRA:

1. Use 'Text Field' custom field type to represent the link to a file (Administration -> Issue Fields -> Custom Fields)
2. Enable the 'Wiki Style Renderer' for this 'Text Field' custom field (Administration -> Issue Fields -> Field Configurations)
3. In the Issue Screen, try to add a link in the 'Text Field' custom field. For example:

```
[file:///V:/Jira test/example.xls]
```

The file can be opened by right clicking the link and select on the 'Save Target As...'. Do note that this only works on Internet Explorer but can also be enabled in FireFox. Please see:

- Linking to local file under Firefox

For more information on renderers, please refer to:

- Configuring Renderers
- http://jira.atlassian.com/secure/WikiRendererHelpAction.jspa?section=links

How to disable the Resolve issue screen while resolving issues

If you don't wan JIRA to to show a screen when resolving an issue, then disassociate the 'Issue Resolved Screen' from the transition.

The transition view should not be associated with any screen.

How to display a different format for the Number customfield

If you do not like how the Number custom field is displaying in Jira (for example, if you do not want it to display the commas), you can modify a velocity file to configure this. In particular, look at the file `WEB-INF/classes/templates/plugins/fields/view/view-number.vm`. As mentioned here:

> *At the moment to change the way the numbers are printed the easiest thing to do is to edit:*
> *WEB-INF/classes/templates/plugins/fields/view/view-number.vm*
> *under the JIRA web application and replace:*
> *$!numberTool.format($value)*
> *with:*
> *$value.longValue()*
>
> *and restart.*

How to display custom field of the sub-task in the parent issue screen?

Symptoms

Cause

Resolution

By editing the value of `jira.table.cols.subtasks` property in the `jira-application.properties` could solve the problem. For example:

```
jira.table.cols.subtasks = priority, issuetype, status, resolution, assignee, customfield_10000
```

A restart of JIRA needs to be performed after making the modification.

Additional Information

Severity	Low
Regular Expression	$body
Article ID	JIRAKB163939652

Searching JIRA Knowledge Base

How to Edit the 'Contact Administrator' Page in JIRA 4.1.1 and Above

Since JIRA 4.1.1 (see security threat as in JRA-21004), there is no administrative contact under the 'Contact Administrator' page. The contacts can be added manually by modifying `<jira-install>\atlassian-jira\views\administrators.jsp` for example:

```
<p>
<webwork:text name="'system.administrators.line2'"/>
</p>

<ul>
    <li>
        <a href="mailto:admin1@company.com">admin1</a>
    </li>
    <li>
        <a href="mailto:admin2@company.com">admin2</a>
    </li>
</ul>

<ul id="sysadminlist" >

<webwork:iterator value="/systemAdministrators">
```

After the modification, restart JIRA. If it doesn't take effect, delete the `<jira-home>\work` directory and restart JIRA.

How to ensure the Road Map tab is visible

If the Road Map project tab is not visible for a particular project, it may be for one of the following reasons:

- The Road Map Panel (roadmap-panel) module is disabled
- The "Fix Version/s" field is hidden via at the Field Configuration

So, if you are not seeing this tab, but you want to, ensure:

- The Road Map module is enabled under *Administration -> System -> Plugins -> Project Panels Plugin*
- The "Fix Version/s" field is not hidden under *Administration -> Issue Fields -> Field Configurations*

How to Get Unicode 'non-ASCII' Characters in HTTPS URL to Appear Correctly

In most cases URLs running over HTTP work fine, but not when using HTTPS (i.e. over SSL). JIRA is running in Tomcat (or JIRA Standalone). This usually results in Unicode (non-ASCII) characters in an HTTPS URL appear incorrect in the URL, and the served page contains numerous errors

This occurs when the `useBodyEncodingForURI="true"` flag is not defined in the HTTPS connector definition in `JIRA_HOME/conf/server.xml`. Ensure that the `useBodyEncodingForURI="true"` flag is included in the section for HTTPS:

```
<Connector port="8443" maxHttpHeaderSize="8192"
              maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
              enableLookups="false" disableUploadTimeout="true"
              acceptCount="100" scheme="https" secure="true"
              clientAuth="false" sslProtocol="TLS" useBodyEncodingForURI="true" />
```

After specifying the `useBodyEncodingForURI="true"` in all connector definitions (i.e. both the HTTP and the HTTPS connectors), as described in the Modifying Tomcat server.xml documentation.

How to have long component version names display properly in the Issue Navigator

If you create a component or version name which is very long, it is not possibly to view it in the issue navigator. If you're finding this happening in your Jira instance, you can set the width of the component or version list to auto and wrap it in a <div> element with fixed width in this file:

- WEB-INF/classes/templates/jira/issue/searchers/edit/project-constants-searcher-edit.vm

Here is a code sample:

```
...
<div style="width: 180px; overflow-x: scroll; border: 1px #ddddff solid;">
<select .. style="width: auto;">
...
</select>
</div>
...
```

How to Remove 'NONE' from a Select List Custom Field

There are some instances where the 'NONE' in every select list needs to be removed. By default in JIRA you cannot do this from the web interface. See JRA-7687 for a discussion on this feature request.

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

This workaround will apply to all Select List Custom fields in the instance.

To remove the field, edit `<atlassian-jira/WEB-INF/classes/templates/plugins/fields/edit/edit-select.vm`. Delete the lines:

```
...
  #if (!$fieldLayoutItem || $fieldLayoutItem.required == false
    <option value="-1">$i18n.getText("common.words.none")</option>
  #else
    <option value="">$i18n.getText("common.words.none")</option>
  #end
...
```

The following code should remain:

```
...
<select name="$customField.id" id="$customField.id">  #foreach ($option in $configs.options)
    <option value="$textutils.htmlEncode($option.value)"
  #if ($value && $value == $option.value)selected#end
    >$option.value</option>
  #end
</select>
...
```

Make sure to back up the velocity file before changing it. Keep in mind the notes from Modifying JIRA Templates and JSPs.

RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List
Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

How to Rename the 'Priority' Field in the Issue Navigator

In order to rename the "Priorities" text in the issue navigator, you may need to edit the following properties file in the language pack:

> *com/atlassian/jira/web/action/issue/IssueNavigator_en.properties*

The following property value in the Issuenavigator_en.properties:

> *navigator.filter.matchingpriorities*

The language pack is a JAR file located in `<jira-install>/atlassian-jira/WEB-INF/lib`. For more information about Customizing Text in JIRA, please refer to Customizing text.

How to re-order the list of issue operation in an issue

To re-order the issue operation list, the 'order' value at the following file needs to be edited:

```
/atlassian-jira/WEB-INF/classes/system-issueoperations-plugin.xml
```

For example, change the 'order' value for 'Comment on this issue' operation from 50 to 10. By doing so, it will place this operation at the top of the issue operation list:

```
<issue-operation key="comment-issue"
i18n-name-key="admin.issue.operations.plugin.comment.issue.name" name="Comment on this issue"
class="com.atlassian.jira.issue.operations.CommentIssueOperation" state='enabled'>
        <resource type="velocity" name="view"
location="templates/plugins/operations/commentissue.vm" />
        <order>10</order>
</issue-operation>
```

Please restart JIRA after the modification. Do note that this modification will be applied to all the projects in JIRA.

How to resize Free Text Field customfield

You can customise the size of customfield (Free Text Field) at
`%JIRA_HOME%/atlassian-jira/WEB-INF/classes/templates/plugins/fields/edit/edit-textarea.vm`

How to resize the 'Components' and 'Affects Versions' fields in the Issue Navigator

When the values of components or versions are too long, the full name will be truncated within Issue Navigator. Hence, the user is not able to view the full name of the component/version.

> Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

> Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

The workaround is navigate to and edit the following file:

`<JIRA_HOME>/atlassian-jira/WEB-INF/classes/templates/jira/issue/searchers/edit/project-constants-searche`

Change width: 180px to be something that is more appropriate for your JIRA instance.

```
{panel}
{color:}...{color}
{color:}<div style="width: 180px; overflow-x: scroll; border: 1px #ddddff solid;">{color}
<select ..  {color:blue}style="width: auto;"{color}>
...
</select>
{color:blue}</div>{color}
...
{panel}
```

A restart of JIRA is required for the change to take effect. Please make sure to test this in a development instance prior to implementing in your production instance.

Make sure to back up the velocity file before changing it. Keep in mind the notes from [JIRA:Modifying JIRA Templates and JSPs].

RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List
Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

How to Restrict the Subversion Commits Tab to Selected Projects or Users

Symptoms

It may be the case that a project or subset of users in JIRA may need the subversion commits tab and another project or subset of users does not. It is not immediately obvious how to configure such access to the tab.

Cause

The tab is displayed based on the permissions associated with the user viewing issue, project, et cetera.

Resolution

To restrict the tab to selected projects or users, simply configure the appropriate project/group of users to either have or lack the View Version Control permission.

How to search by number range in the Issue Navigator

When searching for some issues based on the "Number Field" custom field type, there may be a requirement to search issues for a range of numbers based on the custom field.

The "Number Field" custom field type can be configured to use the "Number range searcher". Hence, the issues can be searched within a range of values for that customfield. The search template can be changed by clicking on the "Edit" operation via Administration -> Issue Fields -> Custom Fields. For more information, please refer to the custom field documentation

Please note that a re-index needs to be performed via Administration -> System -> Indexing after changing the custom field searcher.

How to show a transition only when the Assignee is different from the Current User

This solution is particularly useful when your workflow has a restriction on assigning issues. For example, certain users can only assign an issue to themselves by executing a transition, and you want the "Assign to Me" action to be visible only if the Current User is not yet the Assignee of the issue.

> The content on this page relates to platforms which are not supported by JIRA. Consequently, Atlassian **can not guarantee providing any support for it**. Please be aware that this material is provided for your information only and using it is done so at your own risk.

Let us consider the assigning scenario. To show the "Assign to Me" transition only when the Assignee is different from the Current User, execute the following steps:

1. Download and install the Jira Scripting Suite plugin. See the Installation&Upgrade Guide.
2. Create a draft of your workflow so you can change it. See Configuring Workflow - Editing an active workflow.
3. Go to the "Assign to Me" transition and add a "Jython Condition". In the "Add Parameters To Condition" screen, paste the following lines of code and click "Add".

```
import com.atlassian.jira.ComponentManager
curr = ComponentManager.getInstance().getJiraAuthenticationContext().getUser()
assig = issue.getAssignee()
result = (curr != assig)
```

4. Publish the changes to your workflow.

> This was tested in JIRA 4.0.2.

See also How to Allow Users to Assign Issues Only in a Specific Transition.

Importing data

To import issue data from CSV (Comma-Separated Value), Bugzilla, FogBugz or Mantis, please see the documentation:

- CSV
- Bugzilla
- FogBugz
- Mantis

For other types of import, please contact us as we may have done it before. See also JIRA's Jelly support — Jelly is a scriptable interface to JIRA that is useful for importing data.

Importing user from LDAP

JIRA's LDAP integration currently requires users to have accounts both in LDAP and in JIRA. For instance, if a user is added to LDAP, they will have no access to JIRA until someone creates them a JIRA username (and assigns it to groups).

The attached tool searches LDAP for user accounts, and generates a JIRA Jelly script which will create a JIRA user account for each LDAP account. Typically one would use this tool when first installing JIRA, to bulk-create JIRA users matching each LDAP account.

How to use

Download the current binary distribution. Alternatively, if you are Java-literate and keen, all current distributions contains source distributions. You can also get the source from Subversion at http://svn.atlassian.com/svn/public/contrib/jira/jira-ldap-userimporter/trunk.

Create a file, `ldap.properties`, to specify your LDAP server's details. If you are unsure of these, first test with an LDAP browser (there are many LDAP browsers available on the internet, you can try using this LDAP browser or search for an alternative one). Here is a `ldap.properties` configured for use against a local OpenLDAP directory:

```
# Configuration file for JIRA's LDAP user importer

# URL of your LDAP server, Eg:
java.naming.provider.url=ldap://192.168.0.74

# Username and password of account that has privileges to loop through all users, eg:
java.naming.security.principal=cn=admin,dc=atlassian,dc=com
java.naming.security.credentials=secret

# LDAP node below which we should search, eg:
searchbase=ou=People,dc=atlassian,dc=com

# LDAP query run below 'searchbase' identifying user nodes, eg:
query=(objectclass=*)

# Name of record in nodes which should become the username in JIRA, eg:
username_attr=uid

# Record that contains the user's full name. When commented out, defaults to username_attr value.
Eg:
fullname_attr=cn

# Record that specifies the user's email address. When commented out, username_attr value with
email_suffix appended will be used
#email_attr=
email_suffix=@atlassian.com


# Generally you don't want to touch this
java.naming.factory.initial=com.sun.jndi.ldap.LdapCtxFactory
```

Once you have created `ldap.properties`, run `java -jar jira-ldap-userimporter-1.1.jar`. If you have the ldap.properties details correct, this command will result in XML text being printed to the console. Eg:

```
~/jira-ldap-userimporter-1.1$ java -jar jira-ldap-userimporter-1.1.jar
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.JiraTagLib">
  <jira:CreateUser username="nobody" password="nobody" confirm="nobody" fullname="nobody"
email="nobody@atlassian.com"/>
  <jira:CreateUser username="jturner" password="jturner" confirm="jturner" fullname="Jeff Turner"
email="jturner@atlassian.com"/>
  <jira:CreateUser username="anonymous" password="anonymous" confirm="anonymous"
fullname="anonymous" email="anonymous@atlassian.com"/>
  <jira:CreateUser username="devuser" password="devuser" confirm="devuser" fullname="devuser"
email="devuser@atlassian.com"/>
</JiraJelly>
```

This text can now be redirected to a file, and fed to the Jelly Runner (see the Jelly docs).
However, first make sure that **LDAP password checking is disabled** (ie. there is no LDAPCredentialsProvider section in osuser.xml), otherwise the Jelly script will fail, claiming these users already exist.

Additional Options

Check Bob Swift's JIRA Command Line Interface for another great way to import users. See the addUser commands on the page; it includes importing from a file.

Feedback? Problem

Please raise a Support Request.

Exceeding your user limit on import?
If you are getting a `LimitExceededException`, you may find these instructions from one of our customers helpful.

Thanks to Ricardo Sueiras

Version History

Version	Comments

1.1	Username is converted to lowercase automatically
1.0	First Released

Neat JIRA LDAP tricks

Gianugo has an interesting blog up about how to take the pain out of migrating users from LDAP

JIRA as a Support System

This document shows how to set JIRA up as a support system:

- JIRA Advantages
- How Atlassian Uses JIRA for Support
- Feature Setup Instructions
  - Permissions
    - 1. Different Projects
    - 2. Issue Level Security
  - Work Queues
  - Email Integration
  - Support Knowledge Base
  - Log Phone Calls To Tickets
  - SLAs
  - Escalate Tickets
  - Change Status After Comment
- Example Scenario
  - Further Support Discussion
  - Related Best-Practice Discussions

JIRA Advantages

- By using one system for support and bug / feature tracking, you can link support issues to the bugs that they reference.
- JIRA is a very simple system to install and use - there is very little training required for support staff, or end users
- JIRA's configurable workflow adapts to your existing support processes

How Atlassian Uses JIRA for Support

Check out the specific ways Atlassian has configured support.atlassian.com at How Atlassian Uses JIRA for Support.

Feature Setup Instructions

Note that some terminology is different between the two systems - for example a support system typically uses the word 'ticket' where an issue tracking system may use the word 'issue'.

Permissions

A support system has different needs for permissions than a bug tracking system. Typically as an end user you can only see issues that you, or your company has raised. The ways of doing this are:

1. Different Projects

At a very simple level, if you are supporting a very limited number of clients, you can set up a different project for each of your clients, with a different permission scheme for each project.

You can set up the permissions so that only the reporter of an issue, and the support staff, can see the issue (i.e. give the 'Browse Projects' permission to the Reporter and appropriate internal groups). This means that each user can only see their own issues, and is very suited to an internal help desk system, or any other support system with a large number of end users.

2. Issue Level Security

You can set up different security levels for each customer. This is similar to having different projects, but allows the support team to manage the issues in just one project.

Work Queues

Often in support systems, the priority of an issue is not as important as the order in which the issues are raised. There may be a Service Level Agreement in place, which specifies that an issue must be responded to within a certain time.

The JIRA toolkit will show you whether the last commented was from a JIRA Administrator, or whether it was from a customer. This allows issues to be prioritised by the order in which they need a response.

Read about How Atlasian Visualizes our Support Queue.

Email Integration

JIRA can easily be set up to handle incoming email, and create new issues, or comment on existing issues. It also sends mail notifications to users when the issue has been updated.

When setup this way, the client can create and comment on an issue, without having access to JIRA.

For more information, see the documentation on Setting up email integration in JIRA — particularly the CreateOrCommentHandler.

Support Knowledge Base

Please see Adding Knowledge Base Functionality To JIRA.

Log Phone Calls To Tickets

Please see Logging Phone Calls In JIRA.

SLAs

Most SLAs are very specific to a particular organisation, so it is difficult to ship a completely out-of-the-box solution with JIRA that will meet everyone's needs. However JIRA has 2 approaches that can be used separately or jointly to meet SLAs:

1. The most powerful approach is to write a Jelly script (sample available) which invokes a saved search (filter), and loops over the issues, adding a comment, transitioning them to a new state (e.g. "Requires Response"), or otherwise letting people know that action needs to be taken. This Jelly script would then be run periodically by a Jelly runner service. Atlassian uses this approach on https://support.atlassian.com, to automatically close issues that have not been replied to in X days. We have a filter returning issues in status "Waiting for Customer", updated from any time to 1 week ago (i.e. not touched in the last week), and these are transitioned to "Inactive", which triggers an email letting the customer know.
2. Create a search filter that finds all issues that meet a certain criteria. Save this filter and subscribe to it, either by email (through JIRA) or by subscribing to the filter's RSS feed in an RSS reader. This way JIRA will notify subscribers what issues are 'outstanding'. For more information on creating and saving filters and subscriptions please see this page. There is also a short video on Simple SLA with Filters.
3. If a Jelly script cannot do what you want, or JIRA's searching capabilities are not sufficient to match issues you want, you could write a custom service that locates issues that meet a certain criteria and then does something with matching issues. For example, a service could reassigns the issues to another team member (e.g. project's lead), increments priority, sends notifications, etc. For more information on JIRA services please see this page.

There are also a number of plugins such as Issue Time Tracking Report and Vertygo that provide support for SLAs.

Escalate Tickets

For an example of code that uses JIRA's API to escalate issues please see: Simple Escalation.

Change Status After Comment

A user adding a comment via the JIRA UI can be prompted to change the issue status. The source is not yet available as this is currently a work in progress but please visit Adaptavist for updates.

Example Scenario

Here is an example scenario for a support environment within an organisation and suggestions on how to setup JIRA to fit this environment.

1. End-users: company workers place phone calls to the 'hot-line' team.
2. Hot-line: answer the end-users and open a ticket for every issue
3. 1st level Help Desk: analyse hot-line tickets, and close them if they are able to respond themselves. Otherwise they dispatch the ticket to one of three 2nd level help desk teams.
    a. Technical 2nd level help desk
    b. Functional 2nd level help desk
    c. Logistic 2nd level help desk

The best way to setup JIRA for the above environment is to create a separate JIRA project for each of the four support groups (one 1st level support team and three 2nd level support teams). It would also be useful to create a separate permission scheme for each project so that permissions can be managed for each project separately. For more information on permissions please see:
Managing Project Permissions

The hot-line team will create a new issue in the 1st level support team's dedicated project (referred to as 'hot-line' project from here on) for every call they receive. The way the hot-line project should be setup depends on whether the actual end users need to see JIRA issues. If yes, ensure that every member of this hot-line team has Modify Reporter permission so that they can set the 'reporter' of the issue as the actual end caller.

It is also possible to create a custom field of type User which can be used to track who (which member of the hot-line team) actually created the issue. The hot-line team member will have to populate this field with their username. For more information on custom fields please see:
Adding a Custom Field

You can then give the Browse Project permission in the hot-line project's permission scheme to the 'Reporter' role (please see the permission documentation referenced above for more details) and 2 user group . One user group will represent represents the hot-line team and the other the 1st level support team. This way, the end users can see issue created on their behalf, but not issue's created for other users. The hot-line group members and the 1st level support team will be able to see all issues in the project.

If the actual end users do not need to see the issues in JIRA it is probably better to not give the Modify Reporter permission to anyone for the hot-line project. The reporter field of the issue will then automatically default to the logged in user (i.e. the hot-line group member who is creating the issue). A custom field of type User can still be created and used to record on whose behalf the issue was created. The field will have to be populated manually during issue creation. This custom field can also be made 'required' so that it will have to be populated during issue creation.

The user group representing 1st level support team should be given the resolve and close issue permissions so that they can resolve/close issues once they are dealt with.

I also recommend setting the 'Assignable User' permission in the hot-line permission scheme to the user group representing the 1st level support team, so that issues can be assigned to them. The 'Assign Issue' permission can be given to the hot-line group so that its members can assign issues to specific 1st level support team members.

Alternatively, the 'Assign Issue' permission can be given to only the 'Project Lead'. The default assignee of the hot-line project can be set to 'Project Lead' or 'Unassigned' (if unassigned issues are enabled. Then the hot-line project's lead can go through all the issues assigned to him/herself or all Unassigned issues and assign them appropriately.

If the 1st level support team members cannot resolve an issue they should create a new issue in one of the other three projects (the technical support project, the functional support project, logistics support group project) to
indicate that the issue has been passed to the 2nd level support. For this to occur the 1st level support team must be given the 'Create Issue' permission in the permission schemes used by these projects.

The issues created in the 2nd level support projects should be linked to the issue in the hot-line project
using Issue Links:

- Configuring Issue Linking

Each of the 3 support projects can be setup as required by each team, in terms of their permissions, notifications, workflows, etc.

If all internal users are stored in a LDAP directory, please take note of JIRA's LDAP integration:

- Connecting to an LDAP Directory

JIRA's customisable workflow can also be very useful:

- Configuring Workflow

The workflow can be customised for each project, and can be used to better reflect the business process of each support team in JIRA. For example, if issues can only have 2 stages (Open and Closed) then it is far better to create and use a custom workflow rather than use the JIRA's default workflow.

Using JIRA's flexible plugin system it is also possible to extend JIRA's functionality in regards to workflow. One place where this can become useful, is when closing issues in the hot-line project that have linked issues in one or more of the 2nd level support projects. It is possible to write a custom Workflow Condition that will look at all the linked issues and only allow an issue to be Closed when the linked issues are also closed. This will ensure, that the issues in the hot-line project
are only closed when the linked issues are handled by the respective 2nd level support team. For more information on creating custom workflow elements (e.g. Workflow Conditions) please see:
How to create Custom Workflow Elements for JIRA 3

If one of the support teams also has an existing support system in place that they would like to continue using, it should be possible to integrate that system with JIRA. JIRA has a number of extension points that can be used to communicate (and hence integrate) with external systems:

- Extending JIRA

By default, JIRA related issue links do not affect workflow, so users can close issues even if other open issues are listed as blocking it. You can enforce the rule that all blocking issues must be resolved before you can resolve the parent issue using the custom 'blockingLinksClosed Condition' workflow plugin.

Further Support Discussion

- How Atlassian Uses JIRA For Support
- Example Helpdesk/Support System Project Configuration

Related Best-Practice Discussions

Page: Using JIRA for Agile Development
Page: JIRA as a Support System
Page: Confluence UI Guidelines
Page: JIRA as a Support System
Page: Confluence UI Guidelines

Page: JIRA as a Support System
Page: JIRA as a Support System
Page: Confluence UI Guidelines
Page: JIRA as a Support System
Page: Confluence UI Guidelines

This document is a work in progress. Feel free to add any comments at the bottom.

Jelly Escalation

Below are the two Jelly scripts used by Atlassian's support system to automatically close issues after a certain period. These Jelly scripts are then run with the built in Jelly Service.

Make an issue inactive

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib"
xmlns:core="jelly:core" xmlns:log="jelly:log" >
<jira:Login username="atlassiansupport" password="[your password]">
    <log:warn>Running Inactivate issues service</log:warn>
    <!-- Properties for the script -->
    <core:set var="comment">This issue has not been updated for 5 business days.

If you have an update, please use "Add Comments For Atlassian" action to let us know. If you need
more time to gather information please let us know and we will 'freeze' this issue. If you have no
other questions, please Close this issue.

If no update is received in the next 5 business days, this issue will be automatically closed.

Thank you,

  The Atlassian Support Team</core:set>
    <core:set var="workflowStep" value="Mark Inactive" />
    <core:set var="workflowUser" value="atlassiansupport" />
    <core:set var="filter7Days" value="11505" />

    <!-- Run the SearchRequestFilter -->
    <jira:RunSearchRequest filterid="${filter7Days}" var="issues" />

    <core:forEach var="issue" items="${issues}">
        <log:warn>Inactivating issue ${issue.key}</log:warn>
        <jira:TransitionWorkflow key="${issue.key}" user="${workflowUser}"
workflowAction="${workflowStep}" comment="${comment}"/>
    </core:forEach>
</jira:Login>
</JiraJelly>
```

Close an issue

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib"
xmlns:core="jelly:core" xmlns:log="jelly:log" >
<jira:Login username="atlassiansupport" password="[your password]">
    <log:info>Running Close issues service</log:info>
    <!-- Properties for the script -->
    <core:set var="comment">This issue has not been updated for 10 business days and will be
Closed.

If this issue has not been completed please reopen this issue and we will do our best to help you
as soon as we can.

Thank you,

  The Atlassian Support Team</core:set>
    <core:set var="workflowStep" value="711" />
    <core:set var="workflowUser" value="atlassiansupport" />
    <core:set var="filter7Days" value="11509" />

    <!-- Run the SearchRequestFilter -->
    <jira:RunSearchRequest filterid="${filter7Days}" var="issues" />

    <!-- Iterate over the issues -->
    <core:forEach var="issue" items="${issues}">
        <log:warn>Closing inactive issue ${issue.key}</log:warn>
        <jira:TransitionWorkflow key="${issue.key}" user="${workflowUser}"
workflowAction="${workflowStep}" comment="${comment}" resolution="Customer Timeout"/>
    </core:forEach>
</jira:Login>
</JiraJelly>
```

For more helpings of Jelly, see Jelly Examples.

Simple Escalation

Here is a piece of code that performs simple escalation. The code finds all issues that have been in the 'Open' status for longer than 24 hours and increases the priority of these issues (if there is a higher priority). This code could be used in a JIRA service so that it is performed periodically.

Please note that the code assumes that all the issues use the default workflow. Hence it also assumes that the the step id it should search for in the OSCurrentstep table is 1. If your issues are using a different workflow you will need to see what status id to search for.

```
EntityCondition con = new EntityExpr(
        new EntityExpr("stepId", EntityOperator.EQUALS, new Long(1)),
        EntityOperator.AND,
        new EntityExpr("startDate", EntityOperator.LESS_THAN_EQUAL_TO, new
Timestamp(System.currentTimeMillis() - 24*3600*1000))
);

List steps = CoreFactory.getGenericDelegator().findByCondition("OSCurrentStep", con, null, null);
for (Iterator iterator = steps.iterator(); iterator.hasNext();)
{
    GenericValue stepGV = (GenericValue) iterator.next();
    IssueManager issueManager = ComponentManager.getInstance().getIssueManager();
    GenericValue issueGV = issueManager.getIssueByWorkflow(stepGV.getLong("entryId"));

    // Increase priority
    ConstantsManager constantsManager = ComponentManager.getInstance().getConstantsManager();
    GenericValue priority =
constantsManager.getPriority(issueGV.getString(IssueFieldConstants.PRIORITY));
    Collection priorities = constantsManager.getPriorities();
    GenericValue higherPriority = null;
    for (Iterator iterator1 = priorities.iterator(); iterator1.hasNext();)
    {
        GenericValue priorityGV = (GenericValue) iterator1.next();
        if (priorityGV.getString("id").equals(priority.getString("id")))
        {
            if (higherPriority != null)
            {
                // Update issue
                issueGV.set(IssueFieldConstants.PRIORITY, higherPriority.getString("id"));
                // Save issue to database and fire an event
                GenericValue originalIssue = issueManager.getIssue(issueGV.getLong("id"));
                User updater = UserUtils.getUser("admin");
                IssueUpdateBean issueUpdateBean = new IssueUpdateBean(issueGV, originalIssue,
IssueEventType.ISSUE_UPDATED, updater);
                IssueUpdater issueUpdater = ComponentManager.getInstance().getIssueUpdater();
                issueUpdater.doUpdate(issueUpdateBean, true);

            }

            break;
        }
        else
        {
            higherPriority = priorityGV;
        }
    }
}
```

The above code will make change items of updated issues appear as if they have been performed by the "admin" user. You may wish to create a special user for this task.

Letting customers only create issues

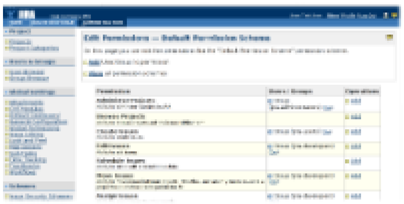
This page describes a minor JIRA modification which redirects users to an arbitrary page after creating issues (and potentially other operations). It is mainly of interest to JIRA **Professional** and **Standard** users.

Scenario

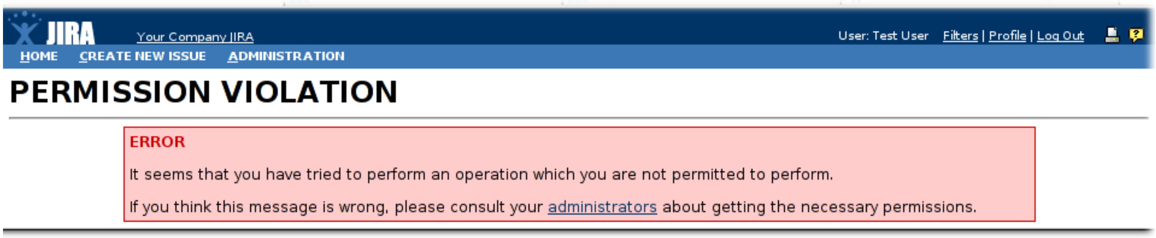
When JIRA is used in a public environment, it is often useful for customers to be able to raise issues directly, but not see other customers' issues.

You can also grant the **Reporter** (and your company groups) the **Browse Issue** permission. Customers can then view issues they have raised.

In JIRA Professional and Standard, **Reporter** isn't available, and permissions can only be granted/denied per group. We want the **Create Issue** permission granted to everyone, but **Browse Projects** denied:



Users will see a permission error after creating an issue - not very customer-friendly!



Redirecting to a custom page.

What we want is the ability to redirect the user to a nice "Thanks for raising an issue" page. We might want to direct to a different page depending on which groups the user is in. This can be done as follows:

Modify actions.xml

If you are using JIRA **Standalone distribution**, open *atlassian-jira/WEB-INF/classes/actions.xml*. If you are deploying JIRA as a webapp and have the **WAR/Webapp distribution**, first copy *webapp/WEB-INF/classes/actions.xml* to *edit-webapp/WEB-INF/classes* and edit *actions.xml* there.

Locate the section:

```
<action name="issue.ViewIssue" alias="ViewIssue">
<view name="success">/secure/views/issue/viewissue.jsp</view>
<view name="rss">/secure/views/issue/viewissue-rss.jsp</view>
<view name="issuenotfound">/secure/views/issuenotfound.jsp</view>
<view name="permissionviolation">/secure/views/permissionviolation.jsp</view>

<command name="moveIssueLink" alias="MoveIssueLink">
<view name="error">/secure/views/issue/viewissue.jsp</view>
</command>
</action>
```

Modify the **permissionviolation** page to `/redirectusers.jsp`:

```
<view name="permissionviolation">/redirectusers.jsp</view>
```

Create a redirect JSP

Now create *atlassian-jira/redirectusers.jsp* (Standalone) or _edit-webapp/_redirectusers.jsp (WAR/Webapp), containing something like this:

```
<%@ page import="com.opensymphony.user.User"%>
<%
User user = com.opensymphony.user.UserManager.getInstance().getUser(request.getRemoteUser());
if (user.inGroup("customerA-users")) {
response.sendRedirect("http://localhost/thankyou.jsp?user="+user);
} else {
response.sendReirect("http://localhost/thankyou.jsp");
}
%>
```

Your logic (group(s) to check for and redirect URLs will be different. If you don't want to create a custom page, you can redirect to *request.getContextPath()+"/secure/Dashboard.jspa"*

Deploy

If you are running JIRA Standalone, simply restart JIRA. If you are using the WAR/Webapp edition, run *build.bat* or *build.sh* to regenerate the .war file, and redeploy this in your app server.

Limiting the number of issues returned from a search view such as an RSS feed

JIRA allows you to view search results in several different formats, including Word, Excel, RSS or XML.

A search view that returns too many issues can take a long time for JIRA to complete and can use a large amount of memory. It can be a factor in OutOfMemoryErrors in JIRA.

An large RSS feed of search results can be particularly problematic, because:

- the user's RSS reader will continue to make the request periodically (for example, every hour)
- since the RSS reader makes the request, not the user directly, the user is unaware that the request takes a long time or is failing

You can use the following three properties in jira-application.properties to limit the number of issues returned by a search view.

See Making changes to jira.application.properties for the details of how to make and apply changes to **jira-application.properties**.

jira.search.views.default.max

`jira.search.views.default.max` sets a "soft" limit on the number of issues returned. It has a default value of 1000. You can set it to, for example, 100 as follows:

```
##
# The maximum number of results to issue navigator will request from a query
# - set this to zero or negative to be unrestricted (note that the server may forbid this, see
below)
#
jira.search.views.default.max = 100
```

For an RSS or XML view, JIRA applies the limit by appending the `tempMax` parameter to the URL of the search view. For example:

- http://jira.atlassian.com/sr/jira.issueviews:searchrequest-xml/temp/SearchRequest.xml?&type=2&pid=10240&resolution=-1&sorter/fie

In the above example, JIRA will limit the number of issues returned to 200 (in this example).

However users can override this "soft" default by removing the `tempMax` parameter from the URL or by increasing the value of `tempMax`.

jira.search.views.max.limit

`jira.search.views.default.max` sets a "hard" limit on the number of issues returned. It is disabled (commented out) by default. You can set it to, for example, 200 as follows:

```
##
# Whether search results are capped to a hard limit, otherwise return a 403 (Forbidden) to the
client.
#
# Set this to negative (-1) or empty for unlimited results.
#
# NOTE: this SHOULD BE EQUALS OR GREATER THAN than jira.search.views.default.max above, otherwise
all issue navigator links will fail with a 403
#
jira.search.views.max.limit = 200
```

If a user makes a issue view request that would return more than 200 issues (in this example), JIRA does not return the issues but instead returns a 403 (Forbidden) error. While the user might not be happy, it prevents JIRA from consuming lots of resources and possibly running out of memory.

Make sure you set the value of `jira.search.views.max.limit` to greater than or equal to the "soft" limit set by `jira.search.views.default.max`. Otherwise all search views that would return issues limited by the default "soft" limit will instead return a 403 (Forbidden) error.

> The `jira.search.views.max.limit` property was added to JIRA in version 3.10. It is not available in versions earlier than 3.10.

jira.search.views.max.unlimited.group

You may have a requirement for most users to have the limit imposed on them, but a few users to be exempt from the limit. One example of this is if your JIRA instance is Internet facing. You may want external (Internet) users to have the limit imposed on them, but for internal users to be able to produce unlimited search views. You can use the `jira.search.views.max.unlimited.group` parameter to achieve this.

The `jira.search.views.max.unlimited.group` property is disabled (commented out) by default. If you enable it, you must set it to a valid group or leave it empty. For example:

```
##
# Regardless of the above, users in this group will be able to request search requests that are unlimited.
#
# This MUST be a valid group or empty.
#
jira.search.views.max.unlimited.group = jira-administrators
```

> The `jira.search.views.max.unlimited.group` property was also added to JIRA in version 3.10. It is not available in versions earlier than 3.10.

> Users exempted from the limit via this technique will still have to add the `tempMax` parameter to the URL for an RSS or XML view, as described above, in order to exceed the `jira.search.views.default.max` soft limit.

Linking to local file under Firefox

> There is a new KB article related to this topic which contains updated information. Please review that if you have questions about linking to file:// URLs from within JIRA:
>
> KB Article: Can't Link to Local Files from within JIRA

Wiki markup allows you to links to files on the network / server with the format:

```
[file:///c:/temp/foo.txt]
```

This works fine under Internet Explorer, but Firefox and Mozilla block links to local files for security purposes. If you are happy with the risk of linking to local content, you can override the security policy and also enable linking in Firefox

The instructions for this can be found at http://kb.mozillazine.org/Links_to_local_pages_don't_work and you may also want to check out the other network preferences.

Please note that you need to use full URL syntax for your link (from http://kb.mozillazine.org)

> *You also need to use proper URI syntax for local file references. It is not proper to enter an operating-system-specific path, such as c:\subdir\file.ext without converting it to a URI, which in this case would be `file:///c:/subdir/file.ext`. In general, a file path is converted to a URI by adding the scheme identifier file:, then three forward slashes (representing an empty authority or host segment), then the path with all backslashes converted to forward slashes.*

Login problems

I have manually reset a user's password, but the user still cannot login

Check (in Admin -> Global Settings -> Global Permissions) that the user belongs to a group that has the **JIRA Users** permission.

The user cannot get past the login page. After clicking the "Log In" button, the login page just refreshes.

This usually occurs when JIRA cannot set a browser cookie. Ensure that cookies are allowed in the user's browser settings.

If you are using IE6, check that your server name does not have an underscore ("_") in it, as IE6 has a problem with this (see JRA-1624).

Mail error - Unable to relay

I'm getting exceptions like "SMTPAddressFailedException: 550 5.7.1 Unable to relay for XXX@XXX". What does this mean?

The "Unable to relay" error means that your mail server doesn't allow relaying for the e-mail address that you are using for your SMTP server. (see http://www.chilkatsoft.com/faq/Smtp550.html). Please try getting your mail server admin to enable relaying for your e-mail address or use another address that has relaying enabled.

You can get more help on changing the e-mail addressed used by JIRA here.

Making JIRA login case insensitive for JIRA 3.13.x

As JIRA will depend on database whether to be case sensitive or insensitive, JIRA login for case sensitive database (eg. Postgres) will be case sensitive as well. To make the login page case insensitive, there are two files that need to be modified:

- `<jira-install>\atlassian-jira\WEB-INF\classes\templates\jira\dashboard\macros.vm` which control the loginform at the dashboard page (eg. http://localhost:8085/secure/Dashboard.jspa). Modify the file as below

```
<tr>
            <td valign="middle" align="center" colspan="2">
                <input id="login" type="button" onClick="CheckForm();"
value="$i18n.getText('common.concepts.login')" tabindex="4" />
            </td>
        </tr>

  <script type="text/javascript">
   function CheckForm() {

    var Username = document.loginform.os_username.value;

    document.loginform.os_username.value = Username.toLowerCase();

    document.loginform.submit();
   }
  </script>

        #if ($allowPasswordReset == true)
        <tr>
            <td valign="middle" align="right" width="25%"> </td>
            <td valign="top"><font size="1"><a
href="${baseurl}/secure/ForgotPassword!default.jspa">$i18n.getText('common.concepts.forgotpassw
</tr>
        #end
```

- `<jira-install>\atlassian-jira\includes\loginform.jsp` which control the loginform in the middle (eg. http://localhost:8085/login.jsp?os_destination=%2Fbrowse%2FTST-1). Modify the file as below

```
<tr>
   <td valign="middle" align="center" colspan="2">
    <input id="login" type="button" onClick="CheckForm();" value="<webwork:text
name="'common.concepts.login'"/>" tabindex="4">
   </td>
  </tr>

  <script type="text/javascript">
   function CheckForm() {

    var Username = document.loginform.os_username.value;

    document.loginform.os_username.value = Username.toLowerCase();

    document.loginform.submit();
   }
  </script>

  <%
   if
(!ManagerFactory.getApplicationProperties().getOption(APKeys.JIRA_OPTION_USER_EXTERNALMGT)
&&

!ManagerFactory.getApplicationProperties().getOption(APKeys.JIRA_OPTION_USER_PASSWORD_EXTERNALM
{
  %>
  <tr>
   <td valign="middle" align="right" width="25%"> </td>
   <td valign="top"><font size="1"><a href="<%= request.getContextPath()
%>/secure/ForgotPassword!default.jspa"><webwork:text
name="'common.concepts.forgotpassword'"/></a></font></td>
  </tr>
  <% } %>
```

Restart JIRA after the modification. If it does not take effect, delete the work directory and restart JIRA.

Outward Link Description and Inward Link Description

When creating a new Issue Link Type, you need to specify an **Outward Link Description** (e.g. "duplicates") and an **Inward Link Description** (e.g. "is duplicated by").

What do these mean?

When a JIRA user links two issues together,

- the **Outward Link Description** applies to the issue from within which they clicked "Link this issue to another issue".
- the **Inward Link Description** applies to the issue that they choose to link to.

Parsing utf-7 emails

Some users report having problem parsing `unicode-1-1-utf-7` (aka `utf-7`) emails. JIRA breaks with a stacktrace like:

```
2007-01-31 12:54:59,176 JiraQuartzScheduler_Worker-2 ERROR
[service.util.handler.CreateIssueHandler] Could not create issue!
java.io.UnsupportedEncodingException: unicode-1-1-utf-7
at sun.nio.cs.StreamDecoder.forInputStreamReader(StreamDecoder.java:52)
at java.io.InputStreamReader.<init>(InputStreamReader.java:83)
at com.sun.mail.handlers.text_plain.getContent(text_plain.java:64)
at javax.activation.DataSourceDataContentHandler.getContent(DataHandler.java:774)
at javax.activation.DataHandler.getContent(DataHandler.java:521)
at javax.mail.internet.MimeBodyPart.getContent(MimeBodyPart.java:603)
at
com.atlassian.jira.service.util.handler.AbstractMessageHandler.handleMultipart(AbstractMessageHandler
com.atlassian.jira.service.util.handler.AbstractMessageHandler.createAttachmentsForMessage(AbstractMe
com.atlassian.jira.service.util.handler.CreateIssueHandler.handleMessage(CreateIssueHandler.java:201)
com.atlassian.jira.service.util.handler.CreateOrCommentHandler.handleMessage(CreateOrCommentHandler.j
com.atlassian.jira.service.services.mail.MailFetcherService.run(MailFetcherService.java:190)
at com.atlassian.jira.service.JiraServiceContainerImpl.run(JiraServiceContainerImpl.java:67)
at com.atlassian.jira.service.ServiceRunner.execute(ServiceRunner.java:48)
at org.quartz.core.JobRunShell.run(JobRunShell.java:191)
at org.quartz.simpl.SimpleThreadPool$WorkerThread.run(SimpleThreadPool.java:516)
```

The solution

Hopefully one day, Sun will include support for this encoding natively (see this Sun bug report, but in the meanwhile you can install a library to get this working. Installation is quite simple:

1. Download the jutf7 jar from http://sourceforge.net/projects/jutf7
2. Copy the jar to your $JAVA_HOME/jre/lib/ext directory. **No other directory will do** - it has to be in this (lowest)classloader to be picked up.
3. Restart JIRA (or Confluence, or whatever is parsing the emails).

Project-specific email templates

Using email notifications, can separate templates be setup for projects or events?

Unfortunately templates are currently global. We anticipate adding this feature to JIRA in future.

QuickSearch guesses the issue key prefix (sometimes)

The Quick Search box (at the top-right of your JIRA screen) can sometimes find issues when you type just the number (e.g. '53'). Other times, you need to type the prefix too (e.g. 'JRA-53').

This is due to the concept of a 'selected project' - a bit of JIRA magic if you like. Basically, if you have recently done something in a project, that project becomes your 'selected project'. JIRA tries to 'guess' which issue you are looking for, given the 'selected project'.

But if you've just logged into JIRA, and not yet gone to an issue or a project, you will need to type the complete issue key (including the prefix).

Receiving a Daily Summary of Updated Issues

Some people may prefer to receive a daily summary of updated issues, rather than continual notifications each time an issue is updated. To do this, you will need to:

- 1. Set up your search criteria

- 2. Save your search as a 'Filter'
- 3. Subscribe to your Filter
- 4. (Optional) Stop the continual notifications

1. Set up your search criteria

For example, to find all issues that have been updated in the past 24 hours, use the following Advanced Search query:

```
updated >= "-24h"
```

Or, to find all issues in the "ACME" project that have been updated in the past 24 hours, use the following Advanced Search query:

```
project = "ACME" and updated >= "-24h"
```

2. Save your search as a 'Filter'

Click the '**Save**' link in the '**Operations**' column. Type a name for your new filter (e.g. "Joe's Daily Updates"), then click the '**Save**' button.

- For further details, please see Saving Searches ('Issue Filters').

3. Subscribe to your Filter

Once you haved saved your new filter, click the '**Subscriptions**' link in the '**Operations**' column. Click '**Add subscription**', adjust the default settings if you need to, then click the '**Subscribe**' button.

- For further details, please see Receiving Search Results via Email.

4. (Optional) Stop the continual notifications

If you don't want to receive continual updates each time an issue is updated, your name will need to be removed from the appropriate Notification Schemes.

Recieving Notification for Select Issues or Updates

To receive notifications of updates on issues meeting a set of criteria (For example, watching the output of a particular user), create an issue filter meeting said criteria and either subscribe to it by mail or add the RSS feed to a newsreader software.

For example, to search a list of issues with the following criteria:

```
Assignee: username
Updated from: -1d (updated within the last 24 hours)
```

The filter subscription will periodically send a notification reporting the issues assigned to username which have been updated within the last 24 hours. For more information, please refer to:

- Saving Searches ('Issue Filters')
- Receiving Search Results via Email
- Using the Issue Navigator

Removing Commas for Values Held in Number Field Custom Field Type

JIRA adds commas to numeric value stored in Number field, like 1,234. For further reference see JIRAKB:JRA-7582.

> Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

> Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

This workaround will apply to all Security drop-down lists in the instance.

If you don't wan commas to be added, edit `/WEB-INF/classes/templates/plugins/fields/view/view-number.vm`. Replace the following line:

```
$!numberTool.format($value)
```

with:

```
$value.longValue()
```

Make sure to back up the velocity file before changing it. Keep in mind the notes from Modifying JIRA Templates and JSPs.

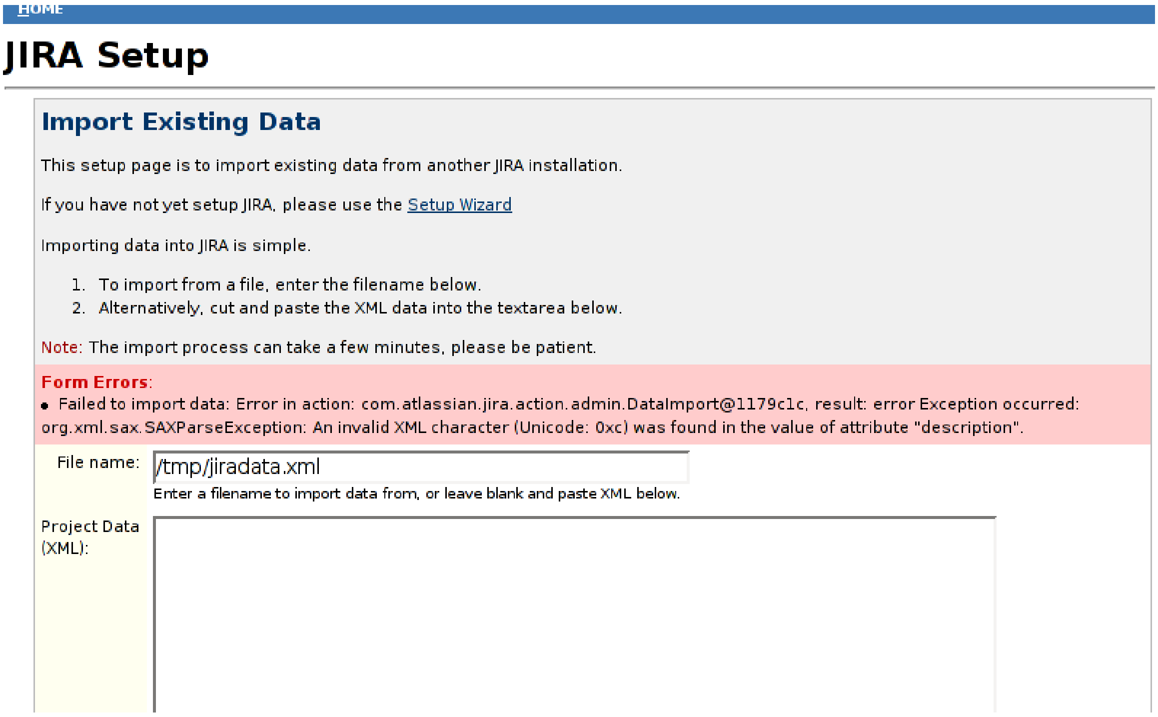
RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List
Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

Removing invalid characters from XML backups

JIRA 3.1 and above should not suffer from this problem. Invalid characters are automatically stripped from imported data

In older versions of JIRA it was possible to cut & paste text containing control characters into JIRA issue fields. This causes problems, because JIRA's backup format is XML, and XML does not allow for the storage of most control characters . When XML containing control characters is imported into JIRA, the import fails with an error:



To fix this, one needs to remove the control characters from the JIRA backup file. This can be done as follows:

- Download atlassian-xml-cleaner-0.1.jar
- Open a DOS console or shell, and locate the XML or ZIP backup file on your computer, here assumed to be called jiradata.xml
- Run:

```
java -jar atlassian-xml-cleaner-0.1.jar jiradata.xml > jiradata-clean.xml
```

This will write a copy of jiradata.xml to jiradata-clean.xml, with invalid characters removed. You should now be able to import jiradata-clean.xml without problems.

Removing NONE from the Issue Security Drop-Down List

There are some instances where the 'NONE' in the Issue Security Drop-Down list must be removed. By default in JIRA you cannot do this from the web interface. See JRA-5332 for a discussion on this feature request.

> Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

> Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

> This workaround will apply to all Security drop-down lists in the instance.

To remove the field, edit `<atlassian-jira/WEB-INF/classes/templates/jira/issue/field/securitylevel-edit.vm`. Delete the lines:

```
<option value="$!noneLevelId"
        #if ($noneLevelId && $security && $security == $noneLevelId )selected#end
        >$i18n.getText('common.words.none')</option>
```

Make sure to back up the velocity file before changing it. Keep in mind the notes from Modifying JIRA Templates and JSPs.

RELATED PAGES

Page: Removing Commas for Values Held in Number Field Custom Field Type
Page: Changing the Size and Content of the Components Select List
Page: Removing NONE from the Issue Security Drop-Down List
Page: Changing the Size of the Fix Versions and Affects Versions Select List
Page: How to Remove 'NONE' from a Select List Custom Field
Page: Changing the Size of the Text Area Custom Field

Re-order workflow transactions

If you need to re-order the workflow actions of a workflow step, for example:

From:

- action1
- action 2
- action 3

To:

- action 2
- action 3
- action 1

...You cannot do this from the web interface, but you can do it.

- Download the workflow as an XML file
- Open up the XML file and change the order of the `<common-actions>` and `<actions>` for every `<step>`
- Upload the XML and view the changes

There are some details here in our documentation.

Resolved issues appearing in Open issues filters

Symptoms

If you find that supposedly "Resolved" issues are appearing in an open issues filter, your customized workflow may not be properly configured.

JIRA regards an "open" issue to be one without a resolution. With a standard JIRA workflow, this means all statuses except Resolved and Closed. When Resolving or Closing an issue, you are presented with a transition screen containing the Resolution field, which you must set to complete that transition. See the default workflow as an example.

It is possible to reconfigure JIRA such that Resolved issues, for example, do not have a resolution. This can happen in two ways:

- The user creates a custom workflow, and doesn't prompt the user for a Resolution on the resolve screen.
- The user hides the Resolution field in the field configuration, so it never appears to users.

Resolution

The long-term solution is to fix the workflow to present the Resolution at every transition into a non-open status. If the Resolution field is hidden, it should be made visible.

Existing issues in Resolved or Closed that have no resolution can be fixed by reopening and reclosing with a resolution.

Here is the process, assuming issues in Resolved and Closed statuses without a resolution set:

1. Do a search for issues in status "Closed", with Resolution "unresolved", which will show affected issues.
2. On the right, you'll see the text "Bulk Change: all X issue(s)". Open that link twice, eg. the same page in two tabs or two browser windows.
3. In one page:
   o Click the checkbox to select all issues, and click "Next >>".
   o For Operation, choose "Transition Issues", and then choose "Reopen Issue"
   o Uncheck "Send mail for this update"
   o Click confirm.
4. Now in the second page (displaying that original set of issues):
   o Click the checkbox to select all issues, and click "Next >>".
   o Operation, choose "Transition Issues", and then choose "Close Issue"
   o Select a resolution (eg. "Fixed").
   o Uncheck "Send mail for this update"
   o Click confirm.

By doing this you have reopened and closed the issues, setting a resolution. The Closed issues should now no longer appear on your dashboard.

Repeat the same process, but selecting "Resolved" issues this time (and transitioning through Reopen and Resolve).

Restricting the Visibility of Worklog on an Issue

To restrict the visibility of worklog done on an issue, adjust the 'Log Viewable By' field to specify which users can view the log work information in an issue. For more information, please refer to Logging Work on an Issue.

Retrieving the JIRA Administrator

On this page:

- Scenario A: I don't know which user has the *JIRA Administrators* or *JIRA System Administrators* global permission
  - If there are no JIRA Administrators
- Scenario B: I know which user has the *JIRA Administrators* or *JIRA System Administrators* global permission, but I have forgotten the password
  - 1. Send it via email
  - 2. Set the password directly in the database

Scenario A: I don't know which user has the *JIRA Administrators* or *JIRA System Administrators* global permission

You first need to find out which group(s) have been granted the global permission.

> The *JIRA System Administrators* global permission was added to JIRA in version 3.12. Anyone granted the *JIRA System Administrators* global permission can perform **all** administration tasks in JIRA, whereas anyone granted the *JIRA Administrators* global permission can perform most but not all administration tasks. Prior to version 3.12, anyone granted the *JIRA Administrators* global permission can perform **all** administration tasks.

To find out which group(s) have been granted the *JIRA Administrators* global permission, run the following database query:

```
select perm_parameter from schemepermissions where PERMISSION=0;
```

To find out which group(s) have been granted the *JIRA System Administrators* global permission, run the following database query:

```
select perm_parameter from schemepermissions where PERMISSION=44;
```

Now that you know which group(s) have the global permission, run the following database query to find out which users are in that group (replace "jira-administrators" with the group returned by the above query):

```
select child_name
from cwd_membership
where parent_name='jira-administrators'
```

If you don't know the password for the user(s) returned by this query, move on to Scenario B.

If there are no JIRA Administrators

If you're using Crowd or an external user management system, there may be no users with administrator permissions.
Find the groups in the external management system that you want to grant the administrator permissions and do the following:

1. Shutdown JIRA.
2. Use SQL to assign the appropriate group to the administrator permissions similar to this:

   ```
   update schemepermissions set perm_parameter='jira-system-administrators' where
   permission=44;
   update schemepermissions set perm_parameter='jira-administrators' where permission=0;
   update schemepermissions set perm_parameter='jira-users' where permission=1;
   ```

3. Restart JIRA.

Scenario B: I know which user has the *JIRA Administrators* or *JIRA System Administrators* global permission, but I have forgotten the password

Here are two different ways you can solve this problem:

1. Send it via email

If you have configured JIRA to send email, just click on the **Forgot Password** link on the login page, enter your username and click the **Send it to me** button. Your password will be emailed to you.

2. Set the password directly in the database

You can also update the password hash stored for a user in your database. Run the following command to set the user called XXXX's password to the word *sphere*.

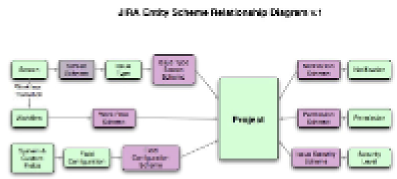
```
update cwd_user set
credential='uQieO/1CGMUIXXftw3ynrsaYLShI+GTcPS4LdUGWbIusFvHPfUzD7CZvms6yMMvA8I7FViHVEqr6Mj4pCLKAFQ=='
where user_name='XXXX';
```

Then restart your JIRA instance.

Scheme Entity Relations Map

This diagram illustrates the relationships between various JIRA entities and schemes.

JIRA Scheme Entity Relations Map (click to view larger image)



You may also wish to view the following user-contributed diagram:

JIRA Scheme Entity Relations Map - user-contributed (click to view larger image)

Sending JIRA Data to Support

To replicate reported problems, Atlassian support staff may ask you for a copy of your JIRA data.

Automatic Support Request (Preferred)

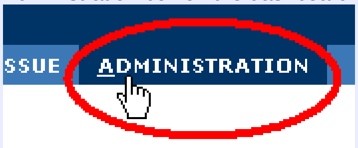
To send an anonymous backup automatically,

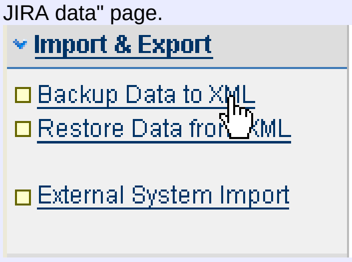
1. From **Administration**, select **Support Request**.
2. Make sure to select the existing ticket number and to include an XML backup, as you fill out the form.

As of JIRA 4.1.1, it is no longer possible to send data via the **Administraion** -> **Support Request** page. Please see below for instructions on providing a manual XML Backup.

Manual XML Backup (Recommended For Email Filters or Large Backups)

To create an anonymous a backup locally,

1. Login as a user with global administrator access.
2. Bring up the administration page by clicking either on the "Administration" link on the top bar or the title of the Administration box on the dashboard:


3. On the panel on the left, under the title "Import & Export", click "Backup Data to XML". This will bring up the "Backup JIRA data" page.


4. In the form, fill in the File path data entry box with a full path, including filename, that JIRA can write to.
5. Select the "Backup as Zip" checkbox. (if you want to anonymize the data, see below).
6. Click the Backup button, and be patient.
7. JIRA will return, confirming that it has written out the content to the file specified above.
8. Attach the generated file on disk to a support request. As the support site runs over SSL this is more secure than email, and you can remove attachments if you like.

Anonymizing data

A Confluence data anonymiser is also available.

For JIRA versions 3.7 through to 4.1, data sent via Administration -> Support Request is anonymised by default, and it is thus the easiest route to sending us anonymised data (but be sure your mail server has a username/password specified, so relaying is allowed).

As of JIRA 4.1.1, it is no longer possible to send data via the Administraion -> Support Request page. To do so, please login to Atlassian Support and attach the data to the existing issue.

Support requests are resolved **much** faster if a data export is provided. However, with sometimes this is not an option because the data contains sensitive information.

In JIRA 3.7.x to 4.1, JIRA automatically anonymises data sent to Atlassian from the Administration -> Support Request page. For earlier or later versions, or people who want to anonymise JIRA data from the command-line, we've created a data 'anonymiser', which replaces most text in JIRA XML backups with **x**'s.

The anonymiser can be downloaded from here.

Unzip the package, then open a console and in the `jira_anon` directory run:

```
$ java -jar joost.jar <name of your backup file.xml> anon.stx > <name of the anonymised backup
file to be generated.xml>
```

For example:

```
$ java -jar joost.jar backup.xml anon.stx > anon-backup.xml
```

Then zip the generated backup XML file, and attach it to a support case on https://support.atlassian.com

The anonymiser currently replaces the following text with x's:

- Issue summary, environment, and description
- Comments, work logs, change logs
- Project descriptions
- Descriptions for most elements (notification schemes, permission schemes, resolutions)
- Attachment file names.
- "Unlimited text" custom fields

Check anon-backup.xml to ensure it's clean enough for your needs before you send to us.

Problems?

Invalid XML Characters

If, when you run the anonymiser, you get an error indicating that there are invalid XML characters in the XML backup of your database, run our utility to remove invalid XML characters first before anonymising.

Out of Memory / Heap Space Errors

If creating your anon-backup.xml partway through, you are likely facing a memory limitation with running the 'java' command with the default settings. To allow the command more memory for the command, simply add arguments after the 'java' command, like so:

```
$ java -Xms512m -Xmx512m -jar joost.jar backup.xml anon.stx > anon-backup.xml
```

Note: you may need to adjust the memory allocation beyond '512m' if the process continues to fail.

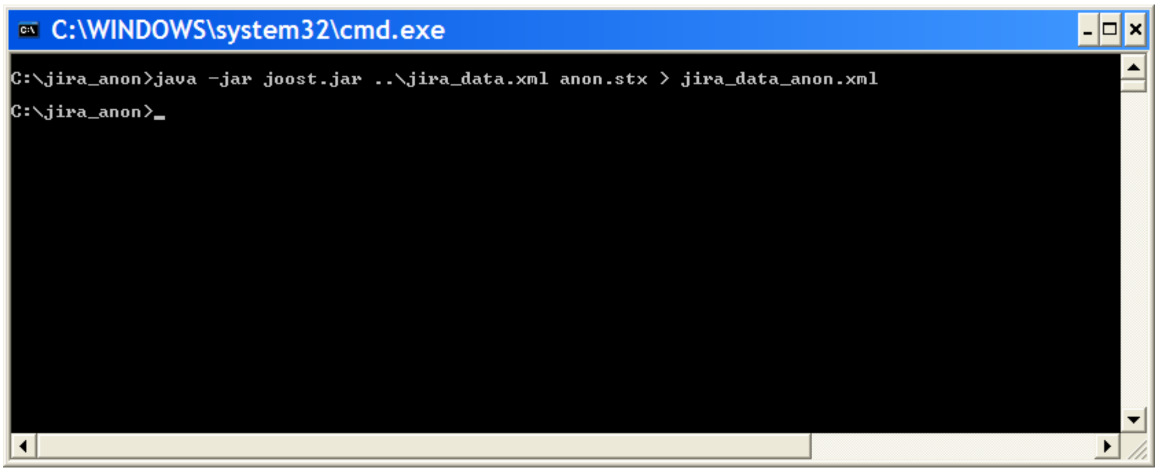
Java Version

You will need Java 1.4 or above to run this. You can check your Java version by running `java -version`, eg:

```
$ java -version
java version "1.5.0_07"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_07-b03)
Java HotSpot(TM) Client VM (build 1.5.0_07-b03, mixed mode, sharing)
```

If you find yourself using JDK 1.3 or earlier, check your path (`echo %PATH%` on Windows, `echo $PATH` on Unix) and ensure that the right version of Java is at the beginning. See the docs for more info on setting up Java.

The screenshot below is a simple example of how it is run in the command prompt of Windows XP:



Setting Additional Fields for Issues Created from Email

To set the issue's assignee from e-mail, set the ccassignee name parameter in the comment handler for the POP/IMAP service used to create issues. Refer to Creating Issues and Comments from Email for more information.

The JIRA Advanced Mail Handler allows users to define fields for the issues created email such as reporter, issue type, priority, summary, description and more.

The priority can be set on a scale 1-5 by setting the X-Priority on the email itself. See your mail server's documentation for tips on how to set the X-Priority. A related discussion appears in JRA-7316.

Setting a Default Value in the Description Field

This page describes how to set a Default Value for the Description field in JIRA. There's a feature request for this at JRA-4812. Please watch and vote on the issue if this is important to you.

There are workarounds to add this functionality. The modification does not persist if you upgrade JIRA so you'll have to re-apply these steps again in the future. Here are directions to set a default value for your Description field in JIRA:

1. Locate and backup the file: WEB-INF/classes/templates/jira/issue/field/description-edit.vm
2. Open that file:

```
#controlHeader ($action $field.id $i18n.getText($field.nameKey) $fieldLayoutItem.required
$displayParameters.get('noHeader'))

## setup some additional parameters
$!rendererParams.put("rows", "12")
$!rendererParams.put("wrap", "virtual")

## let the renderer display the edit component
$rendererDescriptor.getEditVM($!description, $!issue.key, $!fieldLayoutItem.rendererType,
$!field.id, $!field.name, $rendererParams, false)

#controlFooter ($action $fieldLayoutItem.getFieldDescription()
$displayParameters.get('noHeader'))
```

3. Add a section like this:

```
#if($description == '')
#set ($description = 'Put stuff here:')
#end
```

So, ultimately it should look something like:

```
#controlHeader ($action $field.id $i18n.getText($field.nameKey) $fieldLayoutItem.required
$displayParameters.get('noHeader'))

## setup some additional parameters
$!rendererParams.put("rows", "12")
$!rendererParams.put("wrap", "virtual")


#if($description == '')
#set ($description = 'Put stuff here:')
#end

## let the renderer display the edit component
$rendererDescriptor.getEditVM($!description, $!issue.key, $!fieldLayoutItem.rendererType,
$!field.id, $!field.name, $rendererParams, false)

#controlFooter ($action $fieldLayoutItem.getFieldDescription()
$displayParameters.get('noHeader'))
```

4. Restart your JIRA instance.

Adding multi-line values

If you wish to display in the description a default value of:

```
Step 1

Step 2

Step 3
```

you'll need to tweak the above instructions a bit:

```
#set ($description = "Step 1\
\
Step 2\
\
Step 3")
#set ($description = $description.replace('\',' '))
```

Setting Priority field value based on customfield value

As the users are neglecting the description of the Priority field, a more detail custom field is created to represent the Priority field. Depending on the radio button custom field selected, the Priority field value is set.

1. Create a customfield name "Severity" at `Browse >> Administration >> Issue Fields >> Custom Fields`
2. Configure the radio button custom field to have a field options
3. Check the customfield ID in the Customfield table from the database by using the following SQL query:

```
SELECT id FROM customfield WHERE cfname="Severity";
```

4. Modify the following javascript code so that **<id>** will be replaced with the id of the custom field found from the first step:

```
<script type="text/javascript" charset="utf-8" id="priorityCustomFieldScript">
    function setIssuePriorityAndSubmit(e)
    {
        // set the value of the priority field here:
 if(document.getElementById("customfield_<id>_1").checked)
 {
  document.getElementById("priority").selectedIndex = 0;
 }
 else if(document.getElementById("customfield_<id>_2").checked)
 {
  document.getElementById("priority").selectedIndex = 1;
 }
 else if(document.getElementById("customfield_<id>_3").checked)
 {
  document.getElementById("priority").selectedIndex = 2;
 }
 else if(document.getElementById("customfield_<id>_4").checked)
 {
  document.getElementById("priority").selectedIndex = 3;
 }
 else if(document.getElementById("customfield_<id>_5").checked)
 {
  document.getElementById("priority").selectedIndex = 4;
 }
    }

    function hidePriorityAndAddSeverityHook()
    {
 var row = document.getElementById("priorityFieldArea");
 row.style.display = 'none';

 AJS.$("#customfield_<id>_1").parents('form').submit(setIssuePriorityAndSubmit);
    }

    var currentLocation = window.location.href;
    if (currentLocation.indexOf('CreateIssue') > -1 || currentLocation.indexOf('EditIssue')
> -1) {
        AJS.$(document).ready(hidePriorityAndAddSeverityHook);
    }
</script>
```

5. Paste the javascript into the description of the "Severity" customfield at `Browse >> Administration >> Issue Fields >> Custom Fields`.

There is no need to hide or remove the 'Priority' field from the screen. The javascript code will hide the Priority field by itself.

Showing Extended Timestamp in the Created Column of the Issue Navigator

This document describes how to modify the *Created* date field in the Issue Navigator to include the time. By default, the column view of the field hard-codes the rendering format to the locale specific "Day" format.

Procedure

Edit the file `JIRA_INSTALL_DIR/atlassian-jira/WEB-INF/classes/templates/jira/issue/field/created-columnview.vm` to always use the extended *formatDMYHMS* rather than *formatDMY*.
For example, the following macro fragment should be changed:

Original - short data format

```
#if ($created)
    #if (${displayParams.excel_view})
        $outlookDateManager.getOutlookDate($authcontext.getLocale()).formatDMYHMS($created)
    #else
        $outlookDateManager.getOutlookDate($authcontext.getLocale()).formatDMY($created)
    #end
#else
     
#end
```

Edited - full time-stamp

```
#if ($created)
    $outlookDateManager.getOutlookDate($authcontext.getLocale()).formatDMYHMS($created)
#else
     
#end
```

Single Sign-on

Single Sign-on Information

Tracking the Time Taken for Each Workflow Transition

There are 2 plugins available in JIRA Extension Page which might be able to fulfill the requirement:

- JIRA Charts can report Average Time in Status
- The JIRA Suite Utilities has a Transitions Summary Tab Panel.

Translating JIRA

This page contains information about translating JIRA into languages other than English.

On this page:

- Atlassian Translations - a collaborative environment for creating translations of JIRA
- What translations of JIRA are currently available?
- How are new translations of JIRA created?
- What about translations of the documentation?

Atlassian Translations – a collaborative environment for creating translations of JIRA

Atlassian Translations provides a collaborative environment for customers to translate JIRA. At present there are thousands of accepted translations across a number of languages. We need your help to make this even better! If you are looking at updating or creating a language pack please use Atlassian Translations and tell us about your experience. You can log in with your My Atlassian account. To provide feedback or submit an existing language pack for import please contact The Internationalisation Team.

What translations of JIRA are currently available?

Currently, JIRA ships with a number of translations in the most commonly-requested languages.

As a JIRA administrator, you can choose the default language from the list of installed languages: see Choosing a Default Language for the latest list.

Individual users can also choose their preferred language from the same list: see Choosing a Language.

How are new translations of JIRA created?

JIRA's internationalisation is an ongoing effort, and we'd love your help. If you would like to translate JIRA into your language, the rest of this document describes how to do so.

- Where to begin?
- Translating into multi-byte languages
- Translating words
- Translating sentences
- Translating the javascript calendar popup tool
- Packaging the translation
- Installing a new translation of JIRA

- Submitting a translation

Where to begin?

In order to get JIRA to appear in your own language you need to translate the content of the properties file located inside the `language_default.jar` file. The `language_default.jar` file is found inside the JIRA installation's `WEB-INF/lib` directory. To get the latest properties files, please download the latest version of JIRA from http://www.atlassian.com/software/jira/JIRADownloadCenter.jspa.

Extract JIRA's default property file (`language_default.jar`) directly into the `WEB-INF/classes` directory (using a standard Unzip utility of 'jar xvf' from the command-line). A new file `JiraWebActionSupport.properties` will be placed inside the directory `WEB-INF/classes/com/atlassian/jira/web/action`.

Rename this properties file so that its name contains the locale details of the language that the content will be translated to. The file's name should match the following format:

```
JiraWebActionSupport_<Language Code>_<Country Code>.properties
```

For example, if you are translating the content of the file into Portuguese (spoken in Portugal), save all changes to a properties file named `JiraWebActionSupport_pt_PT.properties`.

- The location of the properties file within the `WEB-INF/classes` directory should match the directory structure of the extracted jar file. For example, when creating `WEB-INF/classes/com/atlassian/jira/web/action/JiraWebActionSupport_pt_PT.properties` file, it must be located or placed in the `WEB-INF/classes/com/atlassian/jira/web/action` directory (relative to the temporary directory you are working in).
- You do not necessarily have to start your translations with the `language_default.jar` file. You can start working with one of the other language files located in the `WEB-INF/lib` directory (for example, `JiraWebActionSupport_fr_FR.properties`). However, the `language_default.jar` file is the most updated and complete version of the JIRA language file to work with. The other language files may not contain a complete set of properties.
- If the `<Language Code>_<Country Code>` combination in the name of your properties file matches one of the other `JiraWebActionSupport_<Language Code>_<Country Code>.jar` filenames in JIRA's `WEB-INF/lib` directory, then you must either delete or remove that jar file from the `WEB-INF/lib` directory. This ensures that JIRA uses the translations in your `WEB-INF/classes/com/atlassian/jira/web/action/JiraWebActionSupport_<Language Code>_<Country Code>.properties` file.
- In some cases you might need to modify language_en_UK.jar - JRA-8266 in order to modify the default English translation.
- If you are translating into a language that requires multi-byte encoding, please refer to the Translating into multi-byte languages section below for further instructions.

The "Language Code" is a valid ISO Language Code. These codes are the lower-case, two-letter codes as defined by ISO-639.

The "Country Code" is a valid ISO Country Code. These codes are the upper-case, two-letter codes as defined by ISO-3166.

Translating into multi-byte languages

Languages like Chinese and Russian are represented with native two-byte encodings like gb2312 or koi8. Java `.properties` files are assumed to be Unicode encoded as ISO-8859-1. Therefore entering Chinese or Russian characters directly into the `.properties` files will not work.

The solution is to create the translation as a separate file, such as:

```
JiraWebActionSupport_<Language Code>_<Country Code>-native.txt
```

Once completed, these can be transformed into regular `.properties` files with the 'native2ascii' command. E.g. for Russian:

```
native2ascii -encoding cp1251 JiraWebActionSupport_ru_RU-native.txt
```

Translating words

Properties files contain many "entries" for each of the words and sentences used in JIRA. The entry for the common word "Project" looks like this:

```
common.concepts.project = Project
```

To translate this into French (for example), you would replace the English word "Project" with "Projet", ie:

```
common.concepts.project = Projet
```

Translating sentences

Some sentences in JIRA have certain words that are HTML links *OR* constitute database data. For example:

```
issue.operations.move = {0}Move{1} this issue to another project
```

OR

```
roadmap.issuesresolved = {0} of {1} issues have been resolved
```

In the first example, the word "Move" links to the "Move Issue" page. The HTML code for this link is passed in using `{0}` and `{1}`. In the second example, `{0}` is the number of resolved issues and `{1}` is the total number of issues. When translating sentences, ensure that you do not omit these elements. A French translation of the first example above might look like this:

```
issue.operations.move = {0}Déplacer{1} cette demande vers un autre projet
```

> **Note**
> Any HTML needs to be escaped, e.g.
> use
>
> ```
> <
> ```
>
> not
>
> ```
> <
> ```

Translating the javascript calendar popup tool

In addition to the JIRA-specific translation files, you may want to see if there is an existing translation for the ***javascript calendar utility*** that JIRA uses as a date picker. You can find these files in `/jira-components/jira-webapp/src/main/webapp/includes/lib/calendar/lang/`**`.js`. Many languages already have a translation; it is a good idea to look over the translation and see if the months correspond to the correct months that java expects for a date in your locale. If you add a new `calendar_{LANG}.js` file, you will need to add an entry mapping the filename to your language code in the file** `atlassian-jira/WEB-INF/classes/calendar-language-util.properties{*}`. For example:

```
en=calendar_en.js
```

You will also need to add the javascript file as a downloadable web resource. Modify the file `system-webresources-plugin.xml` to include the following:

```
<web-resource key="calendar-{LANG}"
i18n-name-key="admin.web.resources.plugin.calendar.{LANG}.name" name="Calendar"
state='enabled'>
<resource type="download" name="calendar-{LANG}.js"
location="/includes/js/calendar/lang/calendar-{LANG}.js">
<param name="source" value="webContextStatic"/>
</resource>
</web-resource>
```

Packaging the translation

The properties files for each locale are collected into language bundles. Once you have finished translating all the properties files, a language descriptor file has to be created. This file "tells" JIRA that a new language is available. The file **MUST** be called **`language-descriptor.xml`** and should be located at the root of the language bundle (i.e. directly in the temporary directory). The `language-descriptor.xml` tells JIRA which locale (language and country) the property files represent, and the JIRA version for which the translation was last updated. The `language-descriptor.xml` file looks like this:

```
<language>
<locale>en_UK</locale>
<version>2.6</version>
</language>
```

The `locale` tag must contain a proper Java locale name. The locale name is made up of the Language Code and Country Code (please see the Where to begin? section for more details).

- Set the value of the contents of the `locale` tag to the locale that your translation represents.
- Set the contents of the `version` tag to the version of JIRA for which you are doing the translation.

Create a jar ('`jar cvf language_<locale>.jar ...`') which contains all the translated property files (remember to preserve the directory structure) and the `language-descriptor.xml` file. Although not absolutely necessary, it is a good idea to call this file `language_<locale>.jar`, where `<locale>` is the contents of the locale tag in the `language-descriptor.xml` file. For example, for French call the file `language_fr_FR.jar`.

Installing a new translation of JIRA

To make JIRA aware of your translation, you will need to copy the jar file that you created in the previous step (see Packaging the translation into the `WEB-INF/lib` directory found under JIRA's web application directory.

If you would like JIRA to display a flag for your translation during the setup process, place a GIF image with the same name as the locale into the `/images/flags directory` under JIRA's web application directory. For example, for the French translation place a file called `fr_FR.gif` into the `/images/flags` directory.

- If you are installing JIRA for the first time, the first page of the Setup Wizard should now display your newly installed language.
- If you are already using JIRA, you can choose your newly installed language from the list of installed languages: see http://www.atlassian.com/software/jira/docs/latest/i18n.html.

Submitting a translation

If you would like your translation to be included in JIRA, please create an issue on jira.atlassian.com and attach the `jar` containing the properties files.

Reporting a translation issue

Have you noticed an issue with an existing translation? Please file an issue!

What about translations of the documentation?

We do not currently offer translations of the JIRA documentation into other languages. However, we do offer a page where people can contribute the guides they have written in languages other than English: JIRA Documentation in Other Languages.

Troubleshooting Issue Creation Via Email

1. Is the message reaching the e-mail account?

Have your mail server administrator confirm that e-mail sent to the account JIRA is using is successfully reaching the account's Inbox.

2. Is the Create Or Comment Handler service configured correctly in JIRA?

Please review this guide to confirm this:

Creating Issues and Comments from Email

3. Are permissions set properly?

Does the user submitting the issue have Create Issue permissions in the Permission Scheme? If you are having troubles adding comments, make sure your Issue Security Scheme is not restricting the user's access to the issue.

4. Still not working? Enable debug logging in JIRA:

First, we need to change the com.atlassian package from the *WARN* logging level to *DEBUG*. This can be done from the following menu:

Administration -> System -> Logging & Profiling -> Click Edit next to the com.atlassian package

5. Send two e-mails to the email address that JIRA is checking for new issues and comments. Wait 5 minutes and then submit a support

request that includes the JIRA logs.

This can be done from the following menu:

Administration -> System -> Support Request

Remember to check the *Attach JIRA logs* box! Also, please note the e-mail address being used for testing and copy/paste the JIRA service settings for this Create Or Comment handler:

Administration -> System -> Services

> **Example of Service Info**
> handler: Create Or Comment Handler
> popserver: POP server - JSP
> handler.params: project=JSP, issuetype=1, createusers=true, stripquotes=true, bulk=forward
> usessl: No SSL
> forwardEmail: jira-support@atlassian.com

6. Change com.atlassian back from *DEBUG* to *WARN*.

Administration -> System -> Logging & Profiling -> Click Edit next to the com.atlassian package

WARNING: Leaving com.atlassian in debug mode will result in VERY large log files!

Note. If you want to log on a protocol level (IMAP, POP3 or SMTP), please refer to Logging email protocol details.

Using JIRA to Manage reusable modules

Many software products use external modules that are shared with other software products. The external projects are often managed separately, and have their own versions and lifecycles. So the question of how to "map" this scenario to JIRA often arises.

Currently, the best way to solve this in JIRA would be to create a separate JIRA project for each module and application. Then create issues in each JIRA project as needed and use issue linking to link related issues. Using Issue Links, issues can be easily linked across projects.

JIRA also has a clone issue function which can be used to copy an issue. The cloned issue can be then moved to another project. This should save the trouble of manually duplicating issues.

To get an idea of where each product and each module is "up to", JIRA's dashboard can be used. For example, one could place a portlet for each JIRA project that shows all open scheduled issues. This way the dashboard will provide an overview of all outstanding work for each project.

If all relevant issues for external modules have an issue in the product's JIRA project the standard reports and project summary panels (e.g. Change Log and Release Notes) should have all the information they need to be useful. Otherwise, JIRA can be extended by creating a custom project tab panel and/or a report that can look at more than one JIRA project and produce desired summaries. If you decide to write a custom report this tutorial should be useful.

In future we hope to better support this style of project organization, eg. through shareable subprojects (JRA-1072). Please vote/add your thoughts to the issue to increase its popularity. Also, please refer to this document which explains the way Atlassian shcedules new features.

Using validators to make custom fields required on transition screens

Use the 'Fields Required' workflow validator that is packaged in the JIRA Suite Utilities.

Please note the following caveats regarding validation of data by the 'Fields Required' workflow validator at the time of issue creation:

- fields that you set up as "required fields" are not flagged as such in the form to the end-user
- such fields can be cleared at a later time, which is not what you may have intended
- plugins such as GreenHopper will not detect the requirement as implemented by the workflow validator, so may fail later during usage

The reason 3rd party tools are needed is because JIRA's interpretation of "required" from a project's Field Configuration on some custom field means that the field is now required across all screens available to that project, regardless if the screen doesn't actually display that particular field. 3rd party tools, like the JIRA Suite Utilities' 'Fields Required' validator, are effectively a more granular means to control fields at the step or screen level at a project, instead of at the project level by the Project's Field Configuration.

We already have users & groups defined elsewhere - can JIRA make use of these?

Yes. If you have users and groups defined elsewhere then you can either use an existing OSUser provider (such as LDAP or JDBC) or write your own if you have custom needs.

Where are the application server logs?

Please always provide us with both:

1. atlassian-jira.log (see Logging and Profiling)
2. the application server log file, as it can contain useful error information that is not in `atlassian-jira.log`

JIRA Log Location

The logs are written to your JIRA Home Directory (or the current working directory, if the JIRA home directory is not configured). You can view the location of the `atlassian-jira.log` (and the current working directory) in the **'File Paths'** section of the System Information page.

Application Server Logs

Finding the application server log file is application server-specific and in some cases operating system-specific. Here is a decision tree:

- **If you are on Windows**
  - ..using Tomcat (**JIRA Standalone** or JIRA EAR/WAR running in **Tomcat**)
    - ..installed as a **Windows Service**:
      - ..then the logs are in the `logs\stdout_*.log` file under your JIRA Standalone directory and `c:\WINDOWS\system32\atlassian-jira.log` (WINDOWS may be replaced by WINNT), or for JIRA EAR/WAR, under your Tomcat directory
    - ..started via `startup.bat`:
      - ..then some logs are effectively being lost (to the popup DOS window, where it cannot be recaptured). Some logs do go to the `atlassian-jira.log` file in the current directory (wherever you ran `startup.bat` from) but this might not work if your current directory isn't writeable (eg. c:\WINNT\system32, the default). Even if you see an `atlassian-jira.log` it may be an old one, created from a previous startup. **If you value your sanity** (and ours) please install JIRA as a service, even if only to get all of the right logs appearing in a consistent place.

- **If you are on Unix** (Linux, Solaris, etc)
  - and you are using Tomcat (**JIRA Standalone** or JIRA EAR/WAR running in **Tomcat**)
    - ..then the logs are in `logs/catalina.out` under your JIRA Standalone directory, or for JIRA EAR/WAR, under your Tomcat directory

Why doesn't JIRA have a Severity field like Bugzilla?

Originally, JIRA did have both a Priority and a Severity field. The Severity field was removed for a number of reasons, but principally because it was confusing to business users. To a software developer, it seems obvious that the severity of the bug ("The system crashes completely") is unrelated to the priority of it ("There is a one in a million chance of this occurring"). However, JIRA succeeds so well because business users can actually use it. If you present a business user with these two fields, they are instantly confusing (which is why the Severity field was removed).

In order to re-implement Severity, you can create a select-list custom field, order it (with field layouts), put it on your filters (with column layouts) and indeed search and filter it (in the Navigator).

For details, please see Custom Fields.

Workflow Properties

> **Not Everything is Recommended**
> You can use the workflow properties to implement restrictions on certain steps or transitions of a workflow. However, it is not really recommended as we do not guarantee some data and operations (e.g. bulk operations) will not be broken.
>
> So, use it at your own risk.

Available JIRA Workflow Properties

There are a few workflow properties which you can use in a transition or step of a workflow. Here're some helpful links:

- JIRA Forum - Field Properties
- JIRA API Documentation - JiraWorkflow constant values

Name	Values	Related Issues	References	Notes
`jira.field.resolution.exclude`	Resolution id		Resolutions per workflow step	Transition
`jira.field.resolution.include`	Resolution id	JRA-16443	Resolutions per workflow step	Transition

`jira.i18n.submit`	i18n property key	JRA-6798		Transition (usage: action submit button name)
`jira.i18n.title`	i18n property key	JRA-6798		Transition (usage: action name, etc.)
`jira.issue.editable`	`true`, `false`		Configuring Workflow	Step
`jira.permission.*`	user1, user2 / group1, group2 / ...?	JRA-6381	* WorkflowBasedPermissionManager class description (API documentation) * Forum discussion	Step
`opsbar-sequence`	Integer value greater than or equal to 0		Configuring Workflow (Customising Transitions)	Transitions on the 'View Issue' page

Workflows Guidebook

Download a PDF guide with step-by-step examples of common custom JIRA workflows. Guide created for the Mastering JIRA Workflows talk at Atlassian Summit 2010.

You need flash player installed to preview ppt and pdf files

XML format for import & export files

Is the XML format for the import/export files (which also contains the configuration) documented?

Not as such - it is an XML version of the underlying entity model, pulled out of the database. As a result it is always changing with new fields and entities being added. The entity model itself is defined in **WEB-INF/classes/entitymodel.xml**

Installation Notes

JIRA Administrators FAQ

Installation Notes

- Configure JIRA as service on Mac OS X
- Configuring IIS with Tomcat
- Database Notes — These pages contain notes on configuring JIRA with various databases.
  - Connecting JIRA to a different database than the one provided as default
  - Incorrect database type specified
  - Restarting from Setup Wizard in JIRA Standalone
  - Surviving Connection Closures
  - Database limitations on number of projects
  - JIRA and HSQL
    - Running SQL commands in a HSQL database — On rare occasions, one may wish to run raw SQL queries on a JIRA or Confluence database. This page describes how to obtain a SQL console for hsqldb databases, which JIRA and Confluence Standalone editions use by default.
  - JIRA and MS SQL Server 2005
    - Connecting to named instances in SQL Server
    - Error caused by SET NOCOUNT in MS SQL Server
    - MS SQL Server 2000 Startup errors
    - Setting up your JIRA database for MS SQL Server 2005
  - JIRA and MS SQL Server 2008
  - JIRA and MySQL
    - Configuring MySQL 5.1 to store non-ASCII characters
    - JIRA Cannot Connect to MySQL with Named Pipes Enabled
    - JIRA Cannot Create Issues when Using MySQL with Binary Logging
    - MySQL Administrator and Data Truncation Errors
    - MySQL Data Access Exception - Errcode - 17 occurs with JIRA
    - Setting up JIRA Standalone and MySQL on Linux
  - JIRA and Oracle
    - Configuring Datasource for Oracle 10g JDBC drivers
    - Restoring data using I-Net (Oranxo) Driver for Oracle
    - Store Workflow on Disk with Oracle 8 — A workaround for the problem of > 4000 character workflows in Oracle 8 is to store these on disk, instead of in the database.
  - JIRA and PostgreSQL
    - Setting up JIRA Standalone and PostgreSQL on Linux
- How to Set Up SMTP Relay in Exchange 2007
- Installation Troubleshooting Guide
- Installing a LDAP server on Debian Linux for use with JIRA
- Installing Java on Ubuntu or Debian
- Is Clustering or Load Balancing JIRA Possible
- java.lang.NoClassDefFoundError
- JVM and Appserver configuration info
- LicenseFactory error after upgrading JIRA
- Logging request headers
- Running multiple instances of JIRA on one machine
- Solaris ClassNotFoundException
- Windows cannot find -Xms128m

Configure JIRA as service on Mac OS X

If you want to run JIRA as a server on OSX, you will need to configure it to load as a userdaemon. OSX has migrated configuration scripts from services such as cron, rc, or init.d to the launchd utility. There are some good introductory and in-depth explanations of it's function on the web. You can find out more about launchd here:

http://developer.apple.com/macosx/launchd.html

It's easier to use Lingon (http://lingon.sourceforge.net/) to define your plist xml definitions for import into launchd; although because launchd does not permit forking of processes you will need to call $TOMCAT_HOME/bin/catalina.sh directly.

Example definition of com.atlassian.jira.plist:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple Computer//DTD PLIST 1.0//EN"
"http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
         <key>Label</key>
         <string>com.atlassian.jira</string>
         <key>ProgramArguments</key>
         <array>

<string>/usr/local/apache-tomcat-5.5.23/bin/catalina.sh</string>
                 <string>run</string>
         </array>
         <key>RunAtLoad</key>
         <true/>
         <key>ServiceDescription</key>
         <string>JIRA autoloaded as a service</string>
         <key>UserName</key>
         <string>pw</string>
</dict>
</plist>
```

I'd advise adding the <UserName> tag to tell OSX which user to run Tomcat under, eg running Tomcat under root is not recommended. JAVA_HOME will be inherited as an environment variable for whichever user you define in the XML definition - so configure it for that user's .profile in their home directory.

If you wanted to run JIRA as a WAR web-archive, and use OSX's factory install of Tomcat, please see the JIRA WAR installation instructions.

Configuring IIS with Tomcat

The content on this page relates to platforms which are not supported by JIRA. Consequently, Atlassian **can not guarantee providing any support for it**. Please be aware that this material is provided for your information only and using it is done so at your own risk.

It is possible to set this up rather painlessly and the main documentation that we provide covers most use cases. But sometimes there are a few IIS configurations that differ from the default.

You are not using the "Default Website" in IIS

If you are in this boat, you will need to mimic what the Jakarta ISAPI installer created for you in the default website.

There will need to be two virtual directories:

One named 'jira'

Follow these steps to setup the 'jira' virtual directory

1. Right-click on the website, go to New > Virtual Directory ...
2. The alias needs to be called **jira**
3. The path can point to any location, a temp directory, or perhaps your jira install location
4. Check the "Execute (Such as ISAPI application of CGI)", then next and you are now finished.

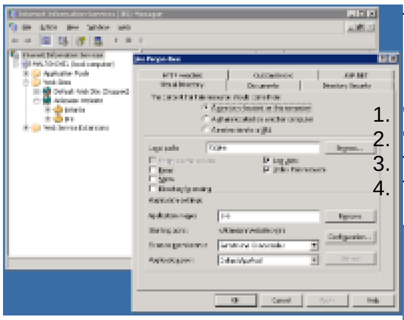
Now in the properties for the 'jira' virtual directory confirm:

1. The Execute Permissions is set to "Scripts and Executables" in the "Execute Permissions" section.

One named 'jakarta'

Follow these steps to setup the 'jakarta' virtual directory

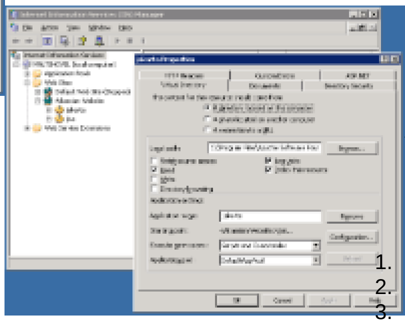
1. Right-click on the website, go to New > Virtual Directory ...
2. The alias needs to be called **jakarta**
3. The path needs to point to the bin directory of the Jakarta Isapi Redirector, ie: C:\Program Files\Apache Software Foundation\Jakarta Isapi Redirector\bin
4. Check the "Execute (Such as ISAPI application of CGI)", then next and you are now



finished.

Now in the properties for the 'jakarta' virtual directory confirm:

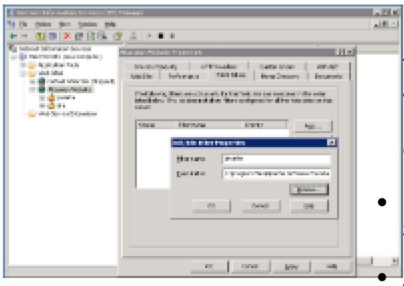
1. "Script source access" is checked
2. "Read" access is checked
3. The Execute Permissions is set to "Scripts and Executables"
4. The "Local Path" points to the bin directory of the Jakarta Isapi Redirector



You will also need to make sure that the non-default website has the Jakarta Redirector installed. This can be done by right-clicking on the non-default website, clicking 'properties' and then clicking on the "ISAPI Filters" tab.

From here you will need too:

1. Click the "Add..." button
2. Enter a filter name: **jakarta**
3. Browse to the "isapi_redirect.dll" file located here: C:\Program Files\Apache Software Foundation\Jakarta Isapi Redirector\bin
4. Click OK, Apply and then OK.



The final step is to restart the IIS Server, this can be done by opening the services.msc and clicking restart on "World Wide Web Publishing"

Gotcha's

- If you are using IIS 6.0 did you remember to add the *Jakarta Isapi Redirector* to the **Web Service Extension's** and set the extension status to *allow* ?
- Also for IIS 6.0 did you remember to add the *Jakarta Isapi Redirector* to the **ISAPI Filters** for the website?
- Is Tomcat listening on port 8009? Try the following from the command prompt to make sure:

```
netstat -na | findstr 8009
```

- Have you given JIRA a context in Tomcat's **server.xml**?

```
<Context path="/jira" docBase="${catalina.home}/atlassian-jira" reloadable="false">
```

And does it match the virtual directory and value in your **uriworkermap.properties** file?

```
/jira/*=wlb
```

Database Notes

These pages contain notes on configuring JIRA with various databases. They are supplementary to the JIRA documentation. If you've ever thought "I wish I'd known that when I started", please help others by adding a note to the relevant database page.

Recommended Databases
Please read the Supported Platforms document to see the list of databases that we recommend for use with your JIRA installation.

- Connecting JIRA to a different database than the one provided as default
- Incorrect database type specified
- Restarting from Setup Wizard in JIRA Standalone
- Surviving Connection Closures
- Database limitations on number of projects
- JIRA and HSQL
  - Running SQL commands in a HSQL database — On rare occasions, one may wish to run raw SQL queries on a JIRA or Confluence database. This page describes how to obtain a SQL console for hsqldb databases, which JIRA and Confluence Standalone editions use by default.
- JIRA and MS SQL Server 2005
  - Connecting to named instances in SQL Server
  - Error caused by SET NOCOUNT in MS SQL Server

    - MS SQL Server 2000 Startup errors
    - Setting up your JIRA database for MS SQL Server 2005
- JIRA and MS SQL Server 2008
- JIRA and MySQL
    - Configuring MySQL 5.1 to store non-ASCII characters
    - JIRA Cannot Connect to MySQL with Named Pipes Enabled
    - JIRA Cannot Create Issues when Using MySQL with Binary Logging
    - MySQL Administrator and Data Truncation Errors
    - MySQL Data Access Exception - Errcode - 17 occurs with JIRA
    - Setting up JIRA Standalone and MySQL on Linux
- JIRA and Oracle
    - Configuring Datasource for Oracle 10g JDBC drivers
    - Restoring data using I-Net (Oranxo) Driver for Oracle
    - Store Workflow on Disk with Oracle 8 — A workaround for the problem of > 4000 character workflows in Oracle 8 is to store these on disk, instead of in the database.
- JIRA and PostgreSQL
    - Setting up JIRA Standalone and PostgreSQL on Linux

Connecting JIRA to a different database than the one provided as default

Please see Connecting JIRA to a Database and Switching Databases.

Incorrect database type specified

Background

JIRA needs to know what kind of database it will be using, in order to generate database tables of the correct data types, and to generate correctly formatted SQL. The database type is specified in **atlassian-jira/WEB-INF/classes/entityengine.xml** (JIRA Standalone), or **edit-webapp/WEB-INF/classes/entityengine.xml** (JIRA WAR/Webapp):

```
...
    <datasource name="defaultDS" field-type-name="hsql"
        helper-class="org.ofbiz.core.entity.GenericHelperDAO"
        check-on-start="true"
        use-foreign-keys="false"
        use-foreign-key-indices="false"
        ...
```

In this example, JIRA expects to use HSQLDB (the default for JIRA Standalone).

If you've got it wrong ...

If you forgot to edit the `entityengine.xml` file (see the documentation), then follow these steps to recover:

1. Fix the type in entityengine.xml

- If you are using **JIRA Standalone**, edit **atlassian-jira/WEB-INF/classes/entityengine.xml**, and correct the database type (valid types are listed in entityengine.xml). See the Using External Databases with JIRA Standalone guide to check if you haven't made other mistakes.
- If you're running JIRA as an EAR/WAR distribution, you need to:
    - Edit **edit-webapp/WEB-INF/classes/entityengine.xml** and fix the type, as above.
    - Run build.bat or build.sh in the root, to rebuild the JIRA webapp.
    - Deploy the rebuilt webapp into your app server.

2. Fix the database

Is this the first time you have run JIRA?

If so, the **database has been created incorrectly**. Specifically, table columns have been created with incorrect data types, and you will see warnings like these in the logs:

```
2005-02-10 12:24:33,307 [core.entity.jdbc.DatabaseUtil] SQL Exception while executing the
following:
CREATE TABLE jiraaction (ID BIGINT NOT NULL, issueid BIGINT, AUTHOR VARCHAR, actiontype VARCHAR,
actionlevel
  VARCHAR, actionbody VARCHAR, CREATED TIMESTAMP, actionnum BIGINT, CONSTRAINT PK_jiraaction
PRIMARY KEY (ID))
Error was: java.sql.SQLException: You have an error in your SQL syntax.  Check the manual that
corresponds
  to your MySQL server version for the right syntax to use near ' actiontype VARCHAR, actionlevel
VARCHAR, actionbody VARCHAR, C
2005-02-10 12:24:33,308 [core.entity.jdbc.DatabaseUtil] Entity "ChangeGroup" has no table in the
database
2005-02-10 12:24:33,309 [core.entity.jdbc.DatabaseUtil] Could not create table "changegroup"
2005-02-10 12:24:33,309 [core.entity.jdbc.DatabaseUtil] SQL Exception while executing the
following:
CREATE TABLE changegroup (ID BIGINT NOT NULL, issueid BIGINT, AUTHOR VARCHAR, CREATED TIMESTAMP,
CONSTRAINT
  PK_changegroup PRIMARY KEY (ID))
Error was: java.sql.SQLException: You have an error in your SQL syntax.  Check the manual that
corresponds to
  your MySQL server version for the right syntax to use near ' CREATED TIMESTAMP, CONSTRAINT
PK_changegroup PRIMARY KEY (ID))
2005-02-10 12:24:33,310 [core.entity.jdbc.DatabaseUtil] Entity "ChangeItem" has no table in the
database
2005-02-10 12:24:33,310 [core.entity.jdbc.DatabaseUtil] Could not create table "changeitem"
```

The solution is to drop (delete) and recreate the database. When next restarted with the correct data types, JIRA will recreate the tables correctly.
Upgrading JIRA?

This situation is potentially problematic, because the newer version of JIRA may have added tables or columns with incorrect data types to your existing database schema.

The safest solution is to start a new database, and import an XML backup made before the upgrade.

If for some reason, you cannot import an XML backup (eg. your upgraded instance has been in production for a few days and contains new data), it is generally possible to patch the database by hand with SQL '`alter table`' statements. Please review the log files for information on what types JIRA expects, and what is actually present. JIRA will print this information every time it starts up. If in doubt, attach the logs and other relevant information to a support request on our support system.

Other situations

If this is not the first time JIRA has loaded, and you are not upgrading, you probably do not need to fix the data. After fixing the `entityengine.xml` file, restart and check the logs for errors. If there are none, the database is fine.

Need help?

Please create a support request and attach the startup logs, your current `entityengine.xml` file, and any other information relevant.

Restarting from Setup Wizard in JIRA Standalone

If you ever want to start again from the Setup Wizard in JIRA Standalone, this can be done as follows:

1. Stop JIRA (run bin\shutdown.bat)
2. Delete the _database_ directory in the JIRA root.
3. Start JIRA, and point your browser at any JIRA page.

Please be aware that key information is stored in the JIRA home directory, not your database. This includes attachments, exports, plugins.

JIRA will detect that no database is present, and will take you through the setup wizard again.

Surviving Connection Closures

When a database server reboots, or there is a network failure, all the connections in the connection pool are broken and this normally requires a Application Server reboot.

However, the Commons DBCP (Database Connection Pool) which is used by the Tomcat application server (and hence JIRA Standalone) can validate connections before issuing them by running a simple SQL query, and if a broken connection is detected, a new one is created to replace it. To do this, you will need to set the "validationQuery" option on the database connection pool.

Performance Considerations
Please note, that setting the `validationQuery` option on the database connection pool will have a performance impact. The overall decrease in performance should be minimal, as the query itself is quick to run. In addition, the query will only execute when you make a connection. Thus, if you keep the connection for the duration of a request, the query will only occur once per request.
You may wish to assess the performance impact of this change before implementing it, if you are running a large JIRA instance.

Determining the Validation Query

Each database has slightly different SQL syntax. The Validation Query should be as simple as possible, as this is run every time a connection is retrieved from the pool.
Some examples are:

Database	Validation Query
MySQL	select 1
MS SQL Server	select 1
Oracle	select 1 from dual
Postgres	select version();

Setting the validationQuery parameter

In your application server, where the JDBC DataSource is configured, a parameter needs to be added to tell the Connection Pool to use a validation query (determined above) to validate connections.

JIRA Standalone (after version 3.2) or JIRA EAR/WAR on Tomcat 5.5 and Tomcat 6.0

If you are using JIRA Standalone, edit `conf/server.xml`
If you are using JIRA EAR/WAR on Tomcat 5.5 or Tomcat 6.0, edit `conf/Catalina/localhost/jira.xml`

Locate the section where the '`jdbc/JiraDS`' DataSource is set up, and add the following:

- If you are using **MySQL** or **MS SQL Server**, add `validationQuery="select 1"`
- If you are using **Oracle**, add `validationQuery="select 1 from dual"`
- If you are using **Postgres**, add `validationQuery="select version();"`

For example (for MySQL):

```
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
    driverClassName="com.mysql.jdbc.Driver"
    url="jdbc:mysql://localhost/jiradb?useUnicode=true&amp;characterEncoding=UTF8"
    username="jirauser"
    password="jirapassword"
    maxActive="20"
    validationQuery="select 1" />
```

Tomcat 4 and 5.0:

Edit `conf/server.xml` (Tomcat 4) or `conf/Catalina/localhost/jira.xml` (Tomcat 5.0), locate the section where the '`jdbc/JiraDS`' DataSource is set up, and add the following:

- If you are using **MySQL** or **MS SQL Server**, add

```
<parameter>
<name>validationQuery</name>
<value>select 1</value>
</parameter>
```

- If you are using **Oracle**, add

```
<parameter>
<name>validationQuery</name>
<value>select 1 from dual</value>
</parameter>
```

For example:

```
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"/>
<ResourceParams name="jdbc/JiraDS">
<parameter>
<name>driverClassName</name>
<value>oracle.jdbc.driver.OracleDriver</value>
</parameter>
<parameter>
<name>url</name>
<value>jdbc:oracle:thin:@<database host machine>:<port>:<SID></value>
</parameter>
<parameter>
<name>username</name>
<value>...</value>
</parameter>
<parameter>
<name>password</name>
<value>...</value>
</parameter>

<parameter>
<name>validationQuery</name>
<value>select 1</value>
</parameter>

<parameter>
<name>factory</name>
<value>org.apache.commons.dbcp.BasicDataSourceFactory</value>
</parameter>
</ResourceParams>
```

Orion / OC4J

For Orion/OC4J, edit `config/data-sources.xml`, and add the property as a nested tag:

```
<data-source
class="<datasource driver class>"
name="<name>"
location="<location>"
xa-location="<xa-location>"
ejb-location="<ejb-location>"
url="<url>"
connection-driver="<driver>"
username="<login>"
password="<password>"
inactivity-timeout="30"
>
<property name="validationQuery" value="Select 1" />
</data-source>
```

Other app servers

Consult the relevant JIRA app server guide and the app server documentation to find how to add the property.

Results

You should now be able to survive a complete loss of all connections and be able to recover without rebooting the your App Server.

Database limitations on number of projects

Limitations on project totals imposed by databases:

Database	Limitation
Oracle	1000
SQL Server	No hard limit as a query can have any number of parameters, as long as it remains within the maximum batch size — which defaults to 65,536 * Network Packet Size (256MB). In practice, however, 2100 is the limit as this is the maximum number of parameters allowed by SQL Server.
MySQL	No hard limit; maximum query size has to be less than max_allowed_packet, which defaults to 1GB, but can be any value in the range 1024-1073741824 Bytes.

PostgreSQL	No hard limits; SQL query size is limited to the OS maximum file size.
HSQLDB	No limits specified, but in practice limited by heap memory.

JIRA and HSQL

This page has general notes on connecting JIRA to HSQL. It supplements the official HSQL installation documentation.

- Running SQL commands in a HSQL database

Running SQL commands in a HSQL database

On rare occasions, one may wish to run raw SQL queries on a JIRA or Confluence database. This page describes how to obtain a SQL console for hsqldb databases, which JIRA and Confluence Standalone editions use by default.

Locate the hsqldb directory

hsql stores its database in text files on the filesystem. Typically these will be in a `database` directory in the JIRA/Confluence root:

```
[atlassian-jira-professional-3.4.2-standalone ~]$ ls -l database/
total 108
-rw-r--r--    1 jturner  jturner         0 Jul 28 09:12 jiradb.data
-rw-r--r--    1 jturner  jturner       343 Jul 28 09:12 jiradb.properties
-rw-r--r--    1 jturner  jturner     72272 Jul 28 10:02 jiradb.script
[atlassian-jira-professional-3.4.2-standalone ~]$
```

In JIRA, the path is specified in `conf/server.xml` as '${catalina.home}/database/jiradb', where ${catalina.home} will be the directory *atlassian-jira-professional-3.4.2-standalone* in this instance.

Locate the hsqldb jar

The hsqldb binary is usually located in the `common/lib/` directory:

```
[atlassian-jira-professional-3.4.2-standalone ~]$ ls common/lib/hsql*
common/lib/hsqldb-1.7.1-patched.jar
```

Shut down JIRA/Confluence

If you haven't already, shut down any apps using the database.

Run the console

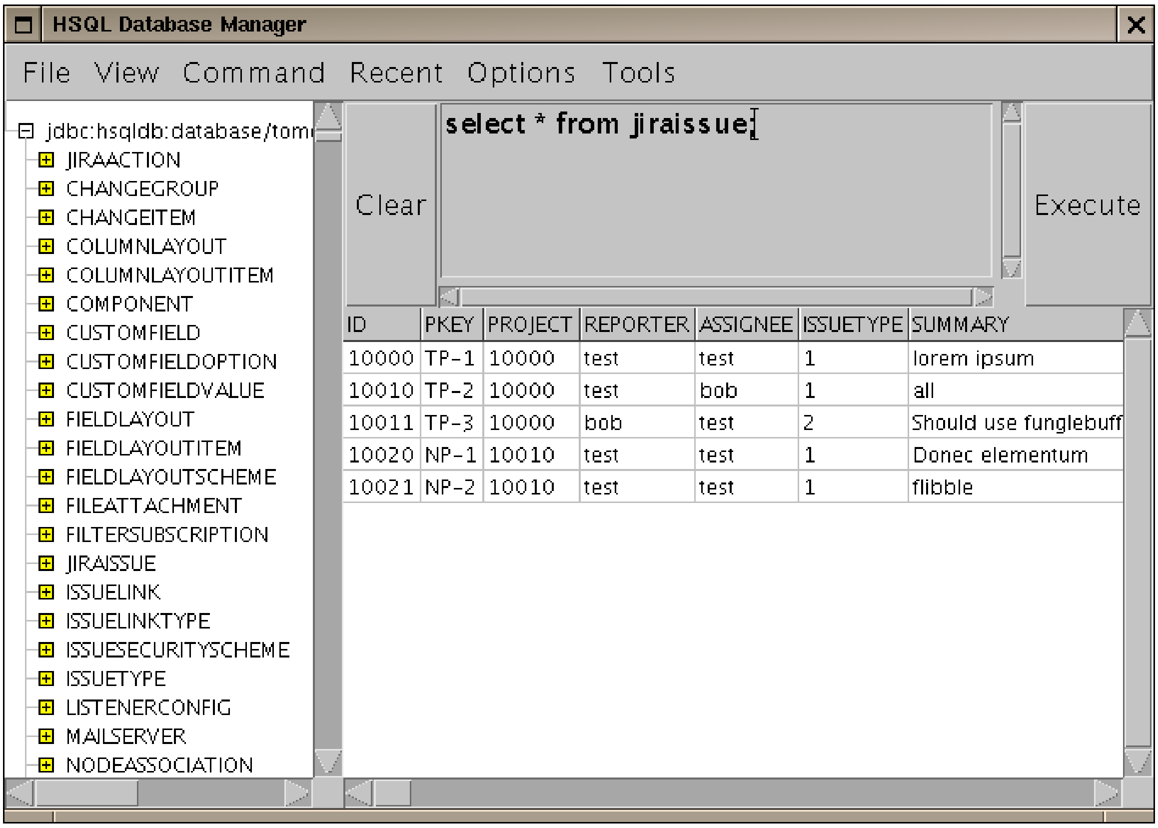
Run the following command (JIRA 3.7+):

```
java -cp common/lib/hsqldb-1.8.0.5.jar org.hsqldb.util.DatabaseManager -user sa -url jdbc:hsqldb:database/jiradb
```

or this for JIRA 3.6.5 and earlier:

```
java -cp common/lib/hsqldb-1.7.1-patched.jar org.hsqldb.util.DatabaseManager -user sa -url jdbc:hsqldb:database/jiradb
```

The hsqldb console should load, listing tables in the database in the left panel. You can run SQL commands in the top panel:



Once you have finished running SQL queries, shut down the console before starting JIRA/Confluence.

JIRA and MS SQL Server 2005

This page has general notes on connecting JIRA to SQL Server 2005. It supplements the official SQL Server 2005 installation documentation
.

- Connecting to named instances in SQL Server
- Error caused by SET NOCOUNT in MS SQL Server
- MS SQL Server 2000 Startup errors
- Setting up your JIRA database for MS SQL Server 2005

Connecting to named instances in SQL Server

When using named instances you will need to specify the URL slightly differently in the connection properties.

First off, try:

```
url="jdbc:jtds:<server_type>://<server>[:<port>][/<database>];instance=<instance_name>"
```

This is specified at the JTDS FAQ

If this doesn't work, try dropping the instance name, and changing the port to the port used by the named instance:

```
url="jdbc:jtds:<server_type>://<server>[:<instance_port>][/<database>]"
```

Note. This port is different to the normal SQL Server port as each instance listens on a different port.

Error caused by SET NOCOUNT in MS SQL Server

It is necessary to ensure that the **SET NOCOUNT** option is not set in the SQL Server configuration. For further details on how to verify these settings, please refer to the JIRA Installation documentation.

If this option is set, it can result in the following errors that can be found in the log file:

```
2006-05-03 15:51:24,331 INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Could not find Issue
Cache Listener, adding.
```

```
2006-05-03 15:51:26,088 WARN [ofbiz.core.entity.SequenceUtil] [SequenceUtil.SequenceBank.fillBank]
first select failed: trying to add row, result set was
empty for sequence: ListenerConfig

2006-05-03 15:51:26,093 WARN [ofbiz.core.entity.SequenceUtil] [SequenceUtil.SequenceBank.fillBank]
first select failed: trying to add row, result set was empty for sequence: ListenerConfig

2006-05-03 15:51:26,094 ERROR [ofbiz.core.entity.SequenceUtil]
[SequenceUtil.SequenceBank.getNextSeqId] Fill bank failed, returning null

2006-05-03 15:51:26,112 ERROR [atlassian.jira.upgrade.ConsistencyCheckImpl] Error adding listener:
org.ofbiz.core.entity.GenericEntityException: while
inserting:
[GenericEntity:ListenerConfig][clazz,com.atlassian.jira.event.listeners.cache.IssueCacheListener][nam
Cache Listener][id,null] (SQL
exception while executing the following:INSERT INTO listenerconfig (ID, CLAZZ, listenername)
VALUES (?, ?, ?) (Cannot insert the value NULL into column
'ID', table 'Jira36Test.JiraUser.listenerconfig'; column does not allow nulls. INSERT fails.))

org.ofbiz.core.entity.GenericEntityException: while inserting:
[GenericEntity:ListenerConfig][clazz,com.atlassian.jira.event.listeners.cache.IssueCacheListener][nam
Cache Listener][id,null] (SQL Exception while
executing the following:INSERT INTO listenerconfig (ID, CLAZZ, listenername) VALUES (?, ?, ?)
(Cannot insert the value NULL into column 'ID', table 'Jira36Test.JiraUser.listenerconfig'; column
does not allow nulls. INSERT fails.))

    at org.ofbiz.core.entity.GenericDAO.singleInsert(GenericDAO.java:123)
    at org.ofbiz.core.entity.GenericDAO.insert(GenericDAO.java:88)
    at org.ofbiz.core.entity.GenericHelperDAO.create(GenericHelperDAO.java:63)
    at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:470)
    at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:450)
    at org.ofbiz.core.entity.GenericValue.create(GenericValue.java:77)
    at com.atlassian.core.ofbiz.util.EntityUtils.createValue(EntityUtils.java:61)
    at com.atlassian.jira.action.admin.ListenerCreate.execute(ListenerCreate.java:22)
    at webwork.dispatcher.GenericDispatcher.executeAction(GenericDispatcher.java:132)
    at com.atlassian.core.action.DefaultActionDispatcher.execute(DefaultActionDispatcher.java:34)
    at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.ensureSingleListener(ConsistencyCheckImpl.java:669)
at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkCacheListener(ConsistencyCheckImpl.java:563)
    at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkDataConsistency(ConsistencyCheckImpl.java:306)
at com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkConsistency(ConsistencyCheckImpl.java:295)
    at com.atlassian.jira.upgrade.ConsistencyCheckImpl.initialise(ConsistencyCheckImpl.java:164)
    at
com.atlassian.jira.upgrade.ConsistencyLauncher.contextInitialized(ConsistencyLauncher.java:27)
    at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3692)
    at org.apache.catalina.core.StandardContext.start(StandardContext.java:4127)
    at org.apache.catalina.core.ContainerBase.addChildInternal(ContainerBase.java:759)
    at org.apache.catalina.core.ContainerBase.addChild(ContainerBase.java:739)
    at org.apache.catalina.core.StandardHost.addChild(StandardHost.java:524)
    at org.apache.catalina.startup.HostConfig.deployDescriptor(HostConfig.java:603)
    at org.apache.catalina.startup.HostConfig.deployApps(HostConfig.java:493)
    at org.apache.catalina.startup.HostConfig.check(HostConfig.java:1195)
    at sun.reflect.GeneratedMethodAccessor341.invoke(Unknown Source)

org.ofbiz.core.entity.GenericDataSourceException: SQL Exception while executing the
following:INSERT INTO listenerconfig (ID, CLAZZ, listenername)
VALUES (?, ?, ?) (Cannot insert the value NULL into column 'ID', table
'Jira36Test.JiraUser.listenerconfig'; column does not allow nulls. INSERT fails.)
    at org.ofbiz.core.entity.jdbc.SQLProcessor.executeUpdate(SQLProcessor.java:375)
    at org.ofbiz.core.entity.GenericDAO.singleInsert(GenericDAO.java:115)
    at org.ofbiz.core.entity.GenericDAO.insert(GenericDAO.java:88)
    at org.ofbiz.core.entity.GenericHelperDAO.create(GenericHelperDAO.java:63)
    at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:470)
    at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:450)
    at org.ofbiz.core.entity.GenericValue.create(GenericValue.java:77)
    at com.atlassian.core.ofbiz.util.EntityUtils.createValue(EntityUtils.java:61)
    at com.atlassian.jira.action.admin.ListenerCreate.execute(ListenerCreate.java:22)
    at webwork.dispatcher.GenericDispatcher.executeAction(GenericDispatcher.java:132)
    at com.atlassian.core.action.DefaultActionDispatcher.execute(DefaultActionDispatcher.java:34)
    at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.ensureSingleListener(ConsistencyCheckImpl.java:669)
at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkCacheListener(ConsistencyCheckImpl.java:563)
```

```
    at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkDataConsistency(ConsistencyCheckImpl.java:306)
at com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkConsistency(ConsistencyCheckImpl.java:295)
    at com.atlassian.jira.upgrade.ConsistencyCheckImpl.initialise(ConsistencyCheckImpl.java:164)
    at
com.atlassian.jira.upgrade.ConsistencyLauncher.contextInitialized(ConsistencyLauncher.java:27)
    at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3692)
   at org.apache.catalina.core.StandardContext.start(StandardContext.java:4127)
    at org.apache.catalina.core.ContainerBase.addChildInternal(ContainerBase.java:759)
    at org.apache.catalina.core.ContainerBase.addChild(ContainerBase.java:739)
    at org.apache.catalina.core.StandardHost.addChild(StandardHost.java:524)
    at org.apache.catalina.startup.HostConfig.deployDescriptor(HostConfig.java:603)
    at org.apache.catalina.startup.HostConfig.deployApps(HostConfig.java:493)
    at org.apache.catalina.startup.HostConfig.check(HostConfig.java:1195)
    at sun.reflect.GeneratedMethodAccessor341.invoke(Unknown Source)

java.sql.SQLException: Cannot insert the value NULL into column 'ID', table
'Jira36Test.JiraUser.listenerconfig'; column does not allow nulls. INSERT fails.
    at net.sourceforge.jtds.jdbc.SQLDiagnostic.addDiagnostic(SQLDiagnostic.java:365)
    at net.sourceforge.jtds.jdbc.TdsCore.tdsErrorToken(TdsCore.java:2781)
    at net.sourceforge.jtds.jdbc.TdsCore.nextToken(TdsCore.java:2224)
    at net.sourceforge.jtds.jdbc.TdsCore.getMoreResults(TdsCore.java:628)
    at net.sourceforge.jtds.jdbc.JtdsStatement.processResults(JtdsStatement.java:525)
    at net.sourceforge.jtds.jdbc.JtdsStatement.executeSQL(JtdsStatement.java:487)
    at
net.sourceforge.jtds.jdbc.JtdsPreparedStatement.executeUpdate(JtdsPreparedStatement.java:421)
    at
org.apache.tomcat.dbcp.dbcp.DelegatingPreparedStatement.executeUpdate(DelegatingPreparedStatement.jav
at org.ofbiz.core.entity.jdbc.SQLProcessor.executeUpdate(SQLProcessor.java:373)
    at org.ofbiz.core.entity.GenericDAO.singleInsert(GenericDAO.java:115)
    at org.ofbiz.core.entity.GenericDAO.insert(GenericDAO.java:88)
    at org.ofbiz.core.entity.GenericHelperDAO.create(GenericHelperDAO.java:63)
    at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:470)
    at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:450)
    at org.ofbiz.core.entity.GenericValue.create(GenericValue.java:77)
    at com.atlassian.core.ofbiz.util.EntityUtils.createValue(EntityUtils.java:61)
    at com.atlassian.jira.action.admin.ListenerCreate.execute(ListenerCreate.java:22)
    at webwork.dispatcher.GenericDispatcher.executeAction(GenericDispatcher.java:132)
    at com.atlassian.core.action.DefaultActionDispatcher.execute(DefaultActionDispatcher.java:34)
    at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.ensureSingleListener(ConsistencyCheckImpl.java:669)
at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkCacheListener(ConsistencyCheckImpl.java:563)
    at
com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkDataConsistency(ConsistencyCheckImpl.java:306)
at com.atlassian.jira.upgrade.ConsistencyCheckImpl.checkConsistency(ConsistencyCheckImpl.java:295)
    at com.atlassian.jira.upgrade.ConsistencyCheckImpl.initialise(ConsistencyCheckImpl.java:164)
    at
com.atlassian.jira.upgrade.ConsistencyLauncher.contextInitialized(ConsistencyLauncher.java:27)
    at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3692)
    at org.apache.catalina.core.StandardContext.start(StandardContext.java:4127)
    at org.apache.catalina.core.ContainerBase.addChildInternal(ContainerBase.java:759)
    at org.apache.catalina.core.ContainerBase.addChild(ContainerBase.java:739)
    at org.apache.catalina.core.StandardHost.addChild(StandardHost.java:524)
    at org.apache.catalina.startup.HostConfig.deployDescriptor(HostConfig.java:603)
```

```
    at org.apache.catalina.startup.HostConfig.deployApps(HostConfig.java:493)
    at org.apache.catalina.startup.HostConfig.check(HostConfig.java:1195)
    at sun.reflect.GeneratedMethodAccessor341.invoke(Unknown Source)
```

add your notes

MS SQL Server 2000 Startup errors

Please refer to our [Knowledge Base article on the topic].

A user reports getting errors like these every time JIRA starts up:

```
[core.entity.jdbc.DatabaseUtil] Entity "Action" has no table in the database
2003-11-06 09:33:45,265 ERROR [core.entity.jdbc.DatabaseUtil] Could not create table "jiraaction"
2003-11-06 09:33:45,265 ERROR [core.entity.jdbc.DatabaseUtil] SQL Exception while executing the
following:
CREATE TABLE jiraaction (ID NUMERIC NOT NULL, issueid NUMERIC, AUTHOR VARCHAR(255), actiontype
VARCHAR(255), actionlevel VARCHAR(255), actionbody TEXT, CREATED DATETIME, actionnum NUMERIC,
CONSTRAINT PK_jiraaction PRIMARY KEY (ID))
Error was: java.sql.SQLException: There is already an object named 'jiraaction' in the database.
2003-11-06 09:33:45,265 WARN [core.entity.jdbc.DatabaseUtil] Entity "ChangeGroup" has no table in
the database
2003-11-06 09:33:45,265 ERROR [core.entity.jdbc.DatabaseUtil] Could not create table "changegroup"
```

JIRA functions correctly otherwise.

A solution is suggested in this jira-user post:

> *Hi Jason,*
>
> *I have had the same errors when at startup that you are seeing.*
>
> *The problem on my server was that when the user in my database ('JIRA')
> created tables they were created as dbo.<tablename> and not
> JIRA.<tablename>
> so when JIRA attempts to verify a table JIRA.<tablename> exists it fails.
> Then it tries to create <tablename>, but it already exists. All the
> created
> tables are owned by 'dbo' and not 'JIRA'.*
>
> *I am running on Microsoft SQL Server so my fix may not fit exactly but this
> is what I had to do:
> Create the 'JIRA' user as a regular user of the JIRA database. Add the
> JIRA user to the db_owner (database owner) role. (DO NOT change the database
> owner to 'JIRA', just add the role!)*
>
> *Of course, you will have to drop your existing database first.*
>
> *Cheers,
> Bradley.*

We have also had reports from other users that there are also alternatives to this solution. The `ddl_admin`, `db_datareader` and `db_datawriter` roles could be used instead of `db_owner` role for the `jirauser` account.

Setting up your JIRA database for MS SQL Server 2005

On this page:

- Overview
- Before you start
  - 1. Enable network connectivity for SQL Server
  - 2. Configure SQL Server with the appropriate Authentication Mode
  - 3. Disable the 'SET NOCOUNT' option in SQL Server
- Setting up the JIRA database
  - 1. Create a new database
  - 2. Create a new database user
  - 3. Create a JIRA database schema

Overview

This page supplements the documentation for Connecting JIRA to SQL Server 2005. It provides detailed instructions on setting up your JIRA database for a **straightforward** integration of JIRA with SQL Server 2005. Unfortunately we do not provide support for advanced database configuration, such as hardening or performance tuning. If you require a more complex solution, refer to MS SQL 2005 Documentation and, if necessary, consult with someone in your organisation who is knowledgeable in the configuration of SQL Server 2005.

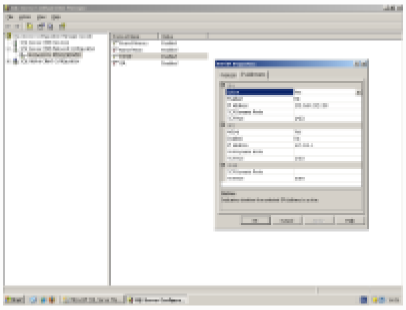
Before you start

1. Enable network connectivity for SQL Server

Ensure that your instance of SQL Server allows TCP/IP connection and is listing on the default port. Please note that network connectivity is **disabled by default** in some versions of SQL Server (e.g. SQL Server 2005 Express edition). Hence, you will have to enable it, as described below:

To enable TCP/IP for SQL Server,

1. Open the '**SQL Server Configuration Manager**'.
2. Expand '**SQL Server 2005 Network Configuration**' in the console pane.
3. Click '**Protocols for <instance name>**'.
4. The details pane will display (see screenshot below). Right-click '**TCP/IP**' and click '**Enable**'.
5. Click '**SQL Server 2005 Services**' in the console pane.
6. The details pane will display. Right-click '**SQL Server (<instance name>)**' and click '**Restart**' to stop and restart the SQL Server service.



Screenshot: Enabling TCP/IP for SQL Server 2005

2. Configure SQL Server with the appropriate Authentication Mode

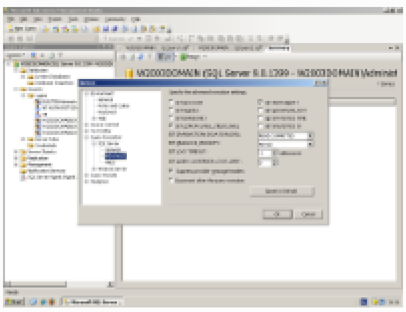
Ensure that SQL Server is operating in the appropriate authentication mode. By default, SQL Server operates in '**Windows Authentication Mode**'. However, if your user is not associated with a trusted SQL connection, i.e. '`Microsoft SQL Server, Error: 18452`' is received during JIRA startup, you will need to change the authentication mode to '**Mixed Authentication Mode**'.

Read the Microsoft documentation on authentication modes for instructions on changing the authentication mode.

3. Disable the 'SET NOCOUNT' option in SQL Server

To disable the 'SET NOCOUNT' option in SQL Server,

1. Open the 'SQL Server Management Studio'
2. Navigate to **''Tools' -> 'Options' -> 'Query Execution' -> 'SQL Server' -> 'Advanced'**. The advanced settings for SQL Server will display.
3. Ensure that the '**SET NOCOUNT**' option is **not selected**, as per the screenshot below:

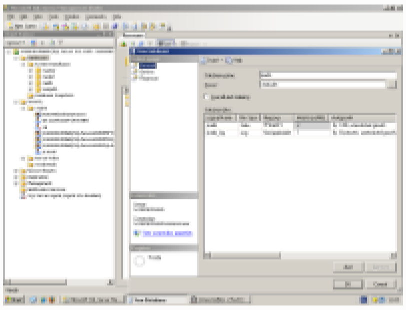


Screenshot: Disabling 'SET NOCOUNT' for SQL Server

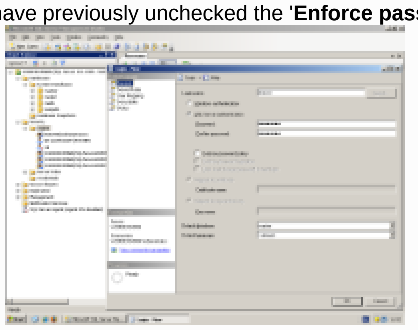
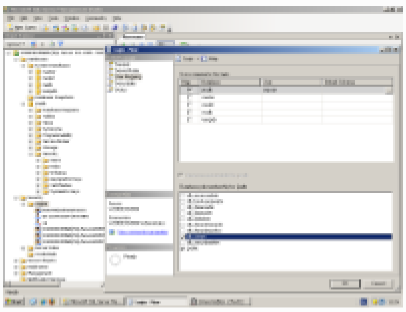
Setting up the JIRA database

To set up your JIRA database for SQL Server 2005,

1. Create a new database

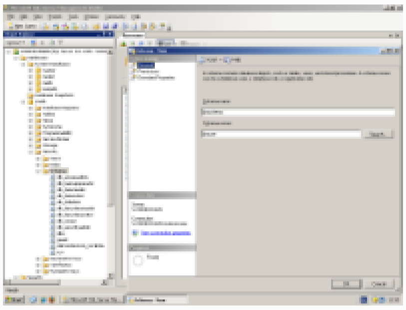
1. Open the 'SQL Server Management Studio'.
2. Connect to the SQL Server that you want to integrate JIRA with. By default this will be '**localhost**'.
3. Navigate to '**<your server name>**' -> '**Databases**' in the left menu of the '**SQL Server Management Studio**'.
4. Right-click '**Databases**' under the server name of your SQL Server and select the '**New Database...**' option from the dropdown menu that appears.
5. The '**New Database**' window will display. Select the '**General**' option in the left menu.
6. The '**General**' page will display (see screenshot below). Enter **jiradb** in the '**Database name**' field.
7. Select the '**Options'** option in the left menu. Check the collation type, the collation type has to be case insensitive e.g.: 'SQL_Latin1_General_CP437_CI_AI' is case insensitive. If it is using your server default, check the collation type of your server.
   
   Screenshot: Create jiradb database
8. Click the '**OK**' button to create the database.

2. Create a new database user

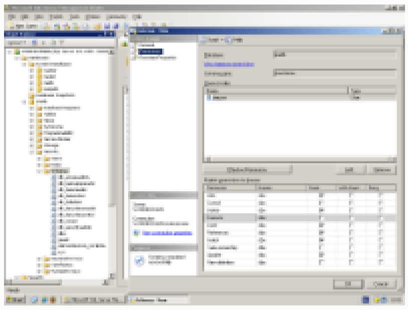
1. Navigate to **'<your server name>' -> 'Security' -> 'Logins'** in the left menu of the 'SQL Server Management Studio'.
2. _Right-click the '**Logins**' folder and select '**New Login**'.
3. The '**Login - New**' window will display. Select the '**General**' option in the left menu.
4. Enter the database user details into the window that displays (see screenshot below), as follows:
   a. Enter '**jirauser**' in the '**Login name**' field.
   b. Select '**SQL Server authentication**'.
   c. Enter '**jirauser**' as the password, and enter '**jirauser**' again in the '**Confirm password**' field.
   d. If you wish to enforce a password policy, check the '**Enforce password policy**' checkbox. However, please be aware that you may need to modify the previously entered password ('jirauser') to meet your password policy rules (e.g. your password policy may require numeric characters in all passwords).
   e. Ensure that the '**Enforce password expiration**' checkbox is unchecked. It will be automatically unchecked and disabled, if you have previously unchecked the '**Enforce password policy**' checkbox.
   f. Ensure that the '**User must change password at next login**' checkbox is unchecked. It will be automatically unchecked and disabled, if you have previously unchecked the '**Enforce password policy**' checkbox.
      
      Screenshot: Create jirauser user
5. Select the '**User Mapping**' option in the left menu.
6. The User Mapping fields for jiradb will display (see screenshot below). Tick the '**jiradb**' checkbox.
7. The '**Database role membership for:jiradb**' panel will display in the bottom panel of the window. Tick the '**db_owner**' checkbox.
8. Click the '**OK**' button to save your changes.
   
   Screenshot: Create user mapping for jirauser

3. Create a JIRA database schema

1. Navigate to **'<your server name>' -> 'Databases' -> 'jiradb' -> 'Security' -> 'Schemas'** in the left menu of the 'SQL Server Management Studio'.
2. Right-click the '**Schemas**' folder and select '**New Schema**'
3. The 'Schema - New' window will display. Select the '**General**' option in the left menu.
4. The '**General**' page will display (see screenshot below). Fill in the fields, as follows:
    - Enter **jiraschema** in the '**Schema name**' field.
    - Enter **jirauser** in the '**Schema owner**' field.

    Screenshot: Create JIRA database schema
5. Select the '**Permissions**' option in the left menu.
6. The '**Permissions**' page will display (see screenshot below). Click the '**Add...**' button.
7. Enter '**jirauser**' in the '**Enter the object names to select (examples):**' field on the pop-up window that displays. Click '**OK**' to save your update and close the pop-up window.
8. Specify the schema permissions in the '**Explicit permission for jirauser**' table on the '**Permissions**' page, as follows:
    - **Alter** — check the '**Grant**' checkbox.
    - **Delete** — check the '**Grant**' checkbox.
    - **Insert** — check the '**Grant**' checkbox.
    - **References** — check the '**Grant**' checkbox.
    - **Select** — check the '**Grant**' checkbox.
    - **Update** — check the '**Grant**' checkbox.
9. Click the '**OK**' button to save your changes.

    Screenshot: Create Permissions for JIRA Schema

Congratulations, you have set up a JIRA database for SQL Server 2005. Please refer back to the Connecting JIRA to SQL Server 2005 page to continue integrating SQL Server 2005 with JIRA.

JIRA and MS SQL Server 2008

This page has general notes on connecting JIRA to SQL Server 2008. It supplements the official SQL Server 2008 installation documentation .

JIRA and MySQL

This page contains additional notes, tips, tricks and caveats on connecting JIRA to MySQL, which supplements the official MySQL installation documentation. Many of these notes are contributed by users, based on their specific experiences in connecting JIRA to MySQL.

- Configuring MySQL 5.1 to store non-ASCII characters
- JIRA Cannot Connect to MySQL with Named Pipes Enabled
- JIRA Cannot Create Issues when Using MySQL with Binary Logging
- MySQL Administrator and Data Truncation Errors
- MySQL Data Access Exception - Errcode - 17 occurs with JIRA
- Setting up JIRA Standalone and MySQL on Linux

Configuring MySQL 5.1 to store non-ASCII characters

To set up a MySQL 5.1 database with JIRA to work with non-ASCII (non-English) characters, please do the following:

1. Create a new MySQL database using the following command:
   `create database jiradb default character set utf8;`
2. Grant all the required permissions to the JIRA user for the database as described here.
3. Change the JDBC URL in JIRA's datasource definition (conf/server.xml for JIRA Standalone) file to use the new database and be:

```
jdbc:mysql://<your_server>:<port>/jiradb?autoReconnect=true&useUnicode=true&characterEncoding=UTF8
```

Please note the '&' XML escape for the ampersands in the url above is needed since it is specified in an xml file.

4. Start JIRA and complete the setup process.

Please ensure that you create a new database using the correct character set and ensure that JIRA creates all its tables on startup without problems. This should allow you to work with all characters supported by Unicode, which covers most characters out there.

Please ensure that you are using the latest MySQL JDBC driver (see Connecting JIRA to MySQL for information on the JDBC driver).

Also please ensure you are using the UTF-8 character encoding in JIRA (Administration -> Global Settings -> General Configuration).

JIRA Cannot Connect to MySQL with Named Pipes Enabled

JIRA can't connect to the database with Named Pipes enabled

```
I've tried a number of things, and it looks like named pipes is the problem. This is a problem
with MySQL, not with JIRA. Essentially I've had to install MySQL with two key things:

    * Go through the Standard Installation route for MySQL, not the Detailed Installation route
    * Enable TCP/IP connections in the MySQL Config Wizard afterwards

After doing this, JIRA now appears to connect to the MySQL and can see the new database
```

Details of what I did to recover MySQL after installing it using named pipes:

MySQL Installation and Config:

- Install MySQL server 5.0 release 5.0.24a (see http://dev.mysql.com/doc/refman/5.0/en/windows-installation.html and http://dev.mysql.com/tech-resources/articles/securing_mysql_windows.html)
- Select typical install
- Configure MySQL with the Configuration Wizard
  o Detailed Configuration
  o Server Machine
  o Multifunctional Database
  o Chose C:\<Installation path> for the InnoDB tablespace
  o Decision Support DSS/OLAP
  o Disable TCP/IP networking for security and Enable Strict Mode
  o UTF-8 character set
  o Install as Windows Service
  o Include MySQL /bin directory on path - allows mysql* commands to be run directly
  o Choose root password: *********** Do not allow access from remote machines
- Execute configuration
  o Config OK - my.ini
  o Service started - mySQL
  o Security setting FAILED - error 2017. Can't open named pipe to host: .pipe:mysql(2)
- Create a my.cnf with (client) host=localhost in it, as per http://mysqld.active-venture.com/Windows_vs_Unix.html. Also edit my.ini to have the same line under (client). Don't know if this will work. Named pipes may be a problem.
- Hmm.. There's a suggestion that the Detailed Configuration method just doesn't work (http://forums.mysql.com/read.php?11,80814,93616). If I can't get JIRA to connect to MySQL it might be necessary to re-install the whole thing...
- Create MySQL database and user for JIRA to use. In a command shell run:
  o mysql -u root
  o CREATE DATABASE jiradb CHARACTER SET 'utf8';
  o show databases;
  o CREATE USER 'jirauser'@'localhost' IDENTIFIED BY '****'; (where **** is jirauser's password)
  o GRANT ALL PRIVILEGES ON jiradb.* TO 'jirauser'@'localhost';
  o quit;
  o mysql -u jirauser -p
  o <enter password>
  o show databases;
  o jiradb is listed as one of the databases
  o quit;

JIRA configuration to use MySQL:

- Download JDBC driver mysql-connector-java-3.1.12.zip
- Copy the mysql-connector-java-3.1.12-bin.jar file from this zip to C:\Jira\atlassian-jira-professional-3.6.5-standalone\common\lib
- Edit the conf/server.xml file
  o username and password for the jirauser account set up above
  o driverClassName="com.mysql.jdbc.Driver"
  o url="jdbc:mysql://localhost/jiradb?autoReconnect=true&useUnicode=true&characterEncoding=UTF8"
  o delete the minEvictableIdleTimeMillis and timeBetweenEvictionRunsMillis parameters
- Edit the entityengine.xml file and change the field-type-name to mysql

Re-start JIRA to use MySQL database

- run C:\jira\atlassian-jira-professional-3.6.5-standalone\bin\shutdown
  o Tomcat web-server shuts down
- run C:\jira\atlassian-jira-professional-3.6.5-standalone\bin\startup
  o Get error on connection: Unable to establish connection with the database. I suspect this is because the database wasn't set up correctly above and can't open named pipes. This is probably the issue with WinNT-based systems not being able to support named pipes (without modification).
- run C:\jira\atlassian-jira-professional-3.6.5-standalone\bin\shutdown

Re-installing MySQL without named pipes

- Go to Control Panel->Add/Remove Programs and remove MySQL
- Delete C:\Program Files\MySQL
- Reinstall as above (typical installation)
- Configure and select "Standard Installation"
  o Install as Windows Service
  o Add \bin to path
  o Choose root password ************
- Execute configuration.
  o Success!
- Run MySQL Config Wizard. Choose options as above.
- Execute configuration
  o Success!
- Set up MySQL database and jira user as above.
- run C:\jira\atlassian-jira-professional-3.6.5-standalone\bin\startup
  o FAILED! Tomcat starts and shuts down immediately. Looking at the logs, it seems that the jirauser account has a & in the password, which stuffs the XML.
- log back in to MySQL as root and run:
  o DROP USER 'jirauser'@'localhost';
  o CREATE USER 'jirauser'@'localhost' IDENTIFIED BY '********'; (makeing sure password has no & in it)
  o GRANT ALL PRIVILEGES ON jiradb.* TO 'jirauser'@'localhost';
  o quit;
- Edit conf/server.xml to the new password
- run C:\jira\atlassian-jira-professional-3.6.5-standalone\bin\startup
  o No good. Still won't connect.
- Try re-running MySQL config and this time enable TCP/IP connection over port 3306 (so that we don't have to use named pipes)
- run C:\jira\atlassian-jira-professional-3.6.5-standalone\bin\startup
  o Tomcat server starts! Hurray. We appear to connect in some way, although there are lots of exceptions. Maybe these are due to the first start?
- Point web browser at http://localhost:8080/
  o JIRA config screen appears - good
- Go through the JIRA setup and initial configuration steps as above

---

http://confluence.atlassian.com/pages/editpage.action?pageId=133186

JIRA Cannot Create Issues when Using MySQL with Binary Logging

If you use JIRA with MySQL and attempt to create a JIRA issue, JIRA may generate an error similar to the following:

```
Error creating issue: Could not create workflow instance: root cause: while inserting:
[GenericEntity:OSWorkflowEntry][id,null][name,jira][state,0]
(SQL Exception while executing the following:INSERT INTO OS_WFENTRY (ID, NAME, INITIALIZED, STATE)
VALUES (?, ?, ?, ?)
(Binary logging not possible. Message: Transaction level 'READ-COMMITTED' in InnoDB is not safe
for binlog mode 'STATEMENT'))
```

OR

```
Binary logging not possible. Message: Transaction level 'READ-COMMITTED' in InnoDB is not safe for
binlog mode 'STATEMENT'
```

You may encounter this problem if your JIRA MySQL database configuration:

- Makes use of the InnoDB database storage engine (which is recommended)
  AND
- Uses MySQL's default binary logging format

JIRA uses the 'READ-COMMITTED' transaction isolation level with MySQL, which currently only supports row-based binary logging. For more information about this, please refer to MySQL issue no. 40360.

To overcome this problem, you must configure MySQL's binary logging format to use 'row-based' binary logging.

To do this:

1. Shutdown JIRA and your MySQL service if necessary.
2. Open the MySQL configuration file (`my.cnf`) in a text editor.

On UNIX-based systems, this file may be located in the `/etc` directory.

3. Locate the `binlog_format` property in this file in the `[mysqld]` section and ensure that its value is `row`, such that you end up with:

```
binlog_format=row
```

4. This is only needed (and valid) for MySQL versions 5.1.5 and later
5. Save your changes to this file and restart your MySQL service and JIRA.

MySQL Administrator and Data Truncation Errors

Hi All,

Due to the release of the 3.7 branch requiring an empty database on startup (see here), a lot of our customers have had issues importing their data into the new install due to encoding inconsistencies between their existing databases and the new ones they've created for 3.7.x.

Errors that users are seeing are Data Truncation errors that look like:

```
org.ofbiz.core.entity.GenericDataSourceException: SQL Exception while executing the
following:INSERT INTO jiraaction (ID, issueid, AUTHOR, actiontype,
actionlevel, rolelevel, actionbody, CREATED, actionnum) VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?) (Data
truncation: Data too long for column 'actionbody' at row 1)\
 at org.ofbiz.core.entity.jdbc.SQLProcessor.executeUpdate(SQLProcessor.java:375)
```

We've been told that users using 'MYSQL Administrator' to create their databases lack the ability to specify what encoding type they wish their database to use. Here is the comment we received from a customer:

```
I solved the problem. I used to create the database using the MySQL Adminstrator with the effect,
that I could not define the character-set to use for the database. So I tried to create the
database manually using the command-line tool and bang, the import of the data worked fine.
```

I hope this helps and saves you all some installation hiccups.

-Michelle

MySQL Data Access Exception - Errcode - 17 occurs with JIRA

A user reports of getting this error caused by a MySQL Bug:

```
com.atlassian.jira.exception.DataAccessException: java.sql.SQLException: Can't create/write to
file 'C:\temp2#sql_eb4_0.MYI' (Errcode: 17)
at com.atlassian.jira.upgrade.util.UpgradeUtils.getExactColumnName(UpgradeUtils.java:222)
at
com.atlassian.jira.appconsistency.db.Build178SchemaCheck.isColumnInTable(Build178SchemaCheck.java:81)
com.atlassian.jira.appconsistency.db.Build178SchemaCheck.check(Build178SchemaCheck.java:71)
at com.atlassian.jira.appconsistency.db.Build178SchemaCheck.isOk(Build178SchemaCheck.java:38)
at com.atlassian.jira.appconsistency.db.DatabaseChecker.checkDatabase(DatabaseChecker.java:108)
at
com.atlassian.jira.appconsistency.db.DatabaseCompatibilityEnforcer.contextInitialized(DatabaseCompati
org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3692)
```

where the error code means:

```
C:\>perror 17
OS error code 17: File exists
```

The Workaround:
Disabling their virus checker seemed to resolve the issue of JIRA not coming up. Users should therefore not run "on-access" checking on their JIRA servers.

Bug Details:
The bug is described in more detail on the following link MySQL Bug Forum.

Setting up JIRA Standalone and MySQL on Linux

The latest official documentation on configuring JIRA with MySQL can be found here. This is a step-by-step supplement guide to installing the JIRA Standalone distribution with a MySQL database, to replace the default HSQLDB.

Unpack the JIRA Standalone distribution

```
[tmp ~]$ tar zxvf ~/apps/atlassian-jira-enterprise-4.0.2-standalone.tar.gz
[tmp ~]$ mv atlassian-jira-enterprise-4.0.2-standalone.tar.gz
[tmp ~]$ cd jira
[jira ~]$
```

Enable MySQL TCP/IP networking

Some Linux distributions (eg. Debian) disable MySQL's TCP/IP networking as a security precaution. You can test that MySQL is listening on the default port (3306) as follows:

```
jturner@teacup:~$ netstat -na | grep 3306
tcp        0      0 127.0.0.1:3306          0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:48211         127.0.0.1:3306          TIME_WAIT
tcp6       1      0 ::ffff:127.0.0.1:34785  ::ffff:127.0.0.1:3306   CLOSE_WAIT
```

Or if `netstat` isn't available:

```
jturner@teacup:~$ telnet localhost 3306
Trying 127.0.0.1...
Connected to localhost.localdomain.
Escape character is '^]'.
D
5.0.13-rc-Debian_1-lo!X{$:;V#H!ju (press ctrl-] here)
telnet> quit
Connection closed.
```

On Debian, you can enable MySQL TCP connections by editing `/etc/my.cnf`, commenting out the 'skip-networking' flag, and restarting mysqld.

Create MySQL database and user

Create a MySQL user called 'jirauser' and database called 'jiradb':

```
jturner@teacup:~$ mysql --user=root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 559 to server version: 5.0.13-rc-Debian_1-log

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> create database jiradb character set utf8;
Query OK, 1 row affected (0.02 sec)

mysql> GRANT SELECT,INSERT,UPDATE,DELETE,CREATE,DROP,ALTER,INDEX on
  jiradb.* TO 'jirauser'@'localhost' IDENTIFIED BY 'mypassword';
Query OK, 0 rows affected (0.00 sec)

mysql> flush privileges;
Query OK, 0 rows affected (0.00 sec)

mysql> quit
Bye
```

The 'IDENTIFIED BY' phrase sets the password for the user (in this case, 'mypassword'). Your hostname may be different; you will find out in the next steps.

Now verify that user 'jirauser' can connect:

```
jturner@teacup:~$ mysql \--user=jirauser \--password=mypassword \--database=jiradb
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 565 to server version: 5.0.13-rc-Debian_1-log

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql>
```

If you get errors like:

```
Access denied for user 'jirauser'@'localhost' (using password: YES)
```

You will need to adjust the 'host' field for the JIRA user record:

```
jturner@teacup:~$ mysql --user=root -p mysql
Enter password:
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 655 to server version: 5.0.13-rc-Debian_1-log

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> select user, host from user;
+------------------+-----------+
| user             | host      |
+------------------+-----------+
| debian-sys-maint | localhost |
| jirauser         | localhost |
| root             | localhost |
| root             | teacup    |
+------------------+-----------+
4 rows in set (0.00 sec)

mysql> update user set host='localhost.localdomain' where user='jirauser';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0
mysql> flush privileges;
Query OK, 0 rows affected (0.03 sec)
```

See also Atlassian's MySQL Tips.

If problems persist, see the MySQL Causes of Access Denied Errors page.

For more general information, see Adding New User Accounts to MySQL.

Copy the JDBC driver

```
[jira ~]$ cp ../mysql-connector-java-5.1.10-bin.jar lib/
[jira ~]$
```

Customise conf/server.xml

Customise conf/server.xml with MySQL details:

```
[jira ~]$ cp conf/server.xml /tmp
[jira ~]$ vim conf/server.xml
[jira ~]$ diff -u /tmp/server.xml conf/server.xml
--- /tmp/server.xml     2007-02-16 17:09:52.000000000 +1100
+++ conf/server.xml     2007-02-16 17:10:55.000000000 +1100
@@ -11,12 +11,10 @@

         <Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
           <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
-            username="sa"
-            password=""
-            driverClassName="org.hsqldb.jdbcDriver"
-            url="jdbc:hsqldb:${catalina.home}/database/jiradb"
-            minEvictableIdleTimeMillis="4000"
-            timeBetweenEvictionRunsMillis="5000"
+            username="jirauser"
+            password="mypassword"
+            driverClassName="com.mysql.jdbc.Driver"
+            url="jdbc:mysql://localhost/jiradb?useUnicode=true&amp;characterEncoding=UTF8"
+            maxActive="20"
             validationQuery="select 1" />

           <!-- NOTE: When a database server reboots or their is a network failure all the
connections in the
```

The `validationQuery` parameter is required to prevent database connections from dropping out. This has been noted to occur when MySQL is used together with some Tomcat versions. JIRA 3.13 Standalone ships with one of the affected Tomcat versions (5.5.26). See JRA-15731 for further details.

Customise entityengine.xml

```
[jira ~]$ cp atlassian-jira/WEB-INF/classes/entityengine.xml /tmp
[jira ~]$ vim atlassian-jira/WEB-INF/classes/entityengine.xml
[jira ~]$ diff \-u /tmp/entityengine.xml atlassian-jira/WEB-INF/classes/entityengine.xml
--- /tmp/entityengine.xml       2007-02-16 17:11:49.000000000 \+1100
\++\+ atlassian-jira//WEB-INF/classes/entityengine.xml    2007-02-16 17:12:04.000000000 \+1100
@@ \-97,8 \+97,7 @@

PLEASE DO NOT set the use-foreign-key\* values to "true" as JIRA does not currently support this.
\-->
- <datasource name="defaultDS" field-type-name="hsql"
- schema-name="PUBLIC"
+    <datasource name="defaultDS" field-type-name="mysql"
helper-class="org.ofbiz.core.entity.GenericHelperDAO"
check-on-start="true"
use-foreign-keys="false"
```

Start JIRA

```
[jira ~]$ ./bin/startup.sh
....
```

Check for errors

```
Check the logs for any errors:16/02/2007 17:13:43 org.apache.coyote.http11.Http11BaseProtocol init
INFO: Initializing Coyote HTTP/1.1 on http-8080
16/02/2007 17:13:43 org.apache.catalina.startup.Catalina load
INFO: Initialization processed in 1181 ms
16/02/2007 17:13:43 org.apache.catalina.realm.JAASRealm setContainer
INFO: Set JAAS app name Catalina
16/02/2007 17:13:43 org.apache.catalina.core.StandardService start
INFO: Starting service Catalina
16/02/2007 17:13:43 org.apache.catalina.core.StandardEngine start
INFO: Starting Servlet Engine: Apache Tomcat/5.5.20
16/02/2007 17:13:43 org.apache.catalina.core.StandardHost start
INFO: XML validation disabled
2007-02-16 17:13:48,209 main [core.entity.jdbc.DatabaseUtil] Entity "Action" has no table in the
database
2007-02-16 17:13:48,497 main [core.entity.jdbc.DatabaseUtil] Entity "ChangeGroup" has no table in
the database
2007-02-16 17:13:48,671 main [core.entity.jdbc.DatabaseUtil] Entity "ChangeItem" has no table in
the database
2007-02-16 17:13:49,110 main [core.entity.jdbc.DatabaseUtil] Entity "ColumnLayout" has no table in
the database
2007-02-16 17:13:49,195 main [core.entity.jdbc.DatabaseUtil] Entity "ColumnLayoutItem" has no
table in the database
....
2007-02-16 17:13:50,529 main [core.entity.jdbc.DatabaseUtil] Entity "WorkflowScheme" has no table
in the database
2007-02-16 17:13:50,535 main [core.entity.jdbc.DatabaseUtil] Entity "WorkflowSchemeEntity" has no
table in the database
2007-02-16 17:14:03,413 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Starting JIRA,
Version: 3.X-#XXX
2007-02-16 17:14:03,413 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Configured to use
database: mysql
2007-02-16 17:14:03,421 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Could not find
Issue Cache Listener, adding.
2007-02-16 17:14:04,532 main WARN [ofbiz.core.entity.SequenceUtil]
[SequenceUtil.SequenceBank.fillBank] first select failed: trying to add row, result set was empty
for sequence: ListenerConfig
2007-02-16 17:14:04,666 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Could not find
Mail Listener, adding.
2007-02-16 17:14:04,790 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Could not find
Mail Queue Service, adding.
2007-02-16 17:14:04,805 main WARN [ofbiz.core.entity.SequenceUtil]
[SequenceUtil.SequenceBank.fillBank] first select failed: trying to add row, result set was empty
for sequence: ServiceConfig
2007-02-16 17:14:05,034 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Input Language has
not been set.  Setting to 'English'
2007-02-16 17:14:05,038 main WARN [ofbiz.core.entity.SequenceUtil]
[SequenceUtil.SequenceBank.fillBank] first select failed: trying to add row, result set was empty
for sequence: OSPropertyEntry
2007-02-16 17:14:05,124 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl]

\****************************************************************************************************
3.X build: XXX started. You can now access JIRA through your web browser.
\****************************************************************************************************
profiling] Using parameter [jira_profile]
[Filter: profiling] defaulting to off [autostart=false]
[Filter: profiling] Turning filter off [jira_profile=off]
2007-02-16 17:14:07,726 main [webwork.dispatcher.ServletDispatcher] Unable to find
'webwork.multipart.saveDir' property setting. Defaulting to javax.servlet.context.tempdir
16/02/2007 17:14:08 org.apache.coyote.http11.Http11BaseProtocol start
INFO: Starting Coyote HTTP/1.1 on http-8080
16/02/2007 17:14:09 org.apache.catalina.storeconfig.StoreLoader load
INFO: Find registry server-registry.xml at classpath resource
16/02/2007 17:14:09 org.apache.catalina.startup.Catalina start
INFO: Server startup in 25881 ms
```

Again, if you see an 'Access denied' error:

```
Access denied for user 'jirauser'@'localhost.localdomain' (using password: YES)
```

Then you need to adjust your /etc/hosts so that 'localhost' comes before 'localhost.localdomain', and restart MySQL. This is a MySQL bug fixed in 5.0.11.

Run the Setup Wizard

Point a browser at http://localhost:8080/, and set up JIRA, as described in the Setup Wizard.

Troubleshooting

Q: I get the following error message in MySQL, "`Attempted reconnect 3 times. Giving up.`" What should I do?
A:

```
jdbc:mysql://localhost/test?autoReconnect=true connection error :
Server connection failure during transaction.
Attempted reconnect 3 times. Giving up.
```

MySQL error message

To troubleshoot your MySQL connection, please follow the steps below:
1. Enter the following command to connect to MySQL:

```
mysql -p -u [dbuser] -h 127.0.0.1 [dbname]
```

For example,

```
mysql -p -u mydbuser -h 127.0.0.1 test
```

2. If you cannot connect to MySQL after entering your password, login to your mysql with the root account:

```
mysql -p -u root
```

And enter following command:

```
mysql> GRANT ALL PRIVILEGES ON <dbname>.* to <user>@127.0.0.1 identified by '<password>';
mysql> FLUSH PRIVILEGES;
```

where,
`<dbname>` is your database name,
`<user>` is your database user name,
`<password>` is your database password,

Don't forget the last command: '`FLUSH PRIVILEGES`'

3. If you still cannot connect, please check that your MySQL is listening on the default port of `3306` and bind in your IP, `127.0.0.1` by running either of the following commands:

```
netstat -a |grep mysql
```

or,

```
netstat -a |grep 3306
```

If MySQL is listening, you should see the following message:

```
tcp 0 0 *:mysql *:* LISTEN
```

Alternatively, you also could check if your MySQL is listening on the default port by running this command:

```
telnet 127.0.0.1 3306
```

JIRA and Oracle

This page has general notes on connecting JIRA to Oracle. It supplements the official Oracle installation documentation.

- Configuring Datasource for Oracle 10g JDBC drivers

- Restoring data using I-Net (Oranxo) Driver for Oracle
- Store Workflow on Disk with Oracle 8

Configuring Datasource for Oracle 10g JDBC drivers

When using JIRA with Oracle, the Oracle 10g JDBC driver needs to have the **SetBigStringTryClob** property set to true to store text of unlimited size in the database. If this property is not set, you will have problems modifying JIRA workflows and storing large (over 32k) text strings.

The **SetBigStringTryClob** property needs to be set in the application server, where the database connection is defined (the 'datasource' definition). The definition depends on the application server that you are using. Please refer to one of the sections below that is applicable to your application server to determine what to add to the datasource definition.

The same thing applies to I-Net's JDBC driver, except the property is called **streamstolob**.

Tomcat 5.5 and 6.0 (JIRA Standalone)

> **Resolving Connection Closure Issues**
> If you experiencing problems with connections closing, you may be able to resolve them by configuring the Commons DBCP (Database Connection Pool) to detect broken connections and create replacement connections. Please read Surviving Connection Closures for instructions on how to do this.

Modify the section where JIRA is configured, usually **conf/Catalina/localhost/jira.xml** or **conf/server.xml** (in JIRA Standalone):

```
<Context path="/jira" docBase="path/to/atlassian-jira-3.11.war">
  <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
    username="...."
    password="...."
    driverClassName="oracle.jdbc.driver.OracleDriver"
    url="jdbc:oracle:thin:@<database host machine>:<port>:<SID>"
    connectionProperties="SetBigStringTryClob=true" />
  <Resource name="UserTransaction" auth="Container" type="javax.transaction.UserTransaction"
    factory="org.objectweb.jotm.UserTransactionFactory"
    jotm.timeout="60"/>
  <Manager className="org.apache.catalina.session.PersistentManager" saveOnRestart="false"/>
</Context>
```

Restoring data using I-Net (Oranxo) Driver for Oracle

When restoring data into an Oracle 9 database using the I-Net Oranxo Driver a user was seeing this error message in their logs:

```
org.ofbiz.core.entity.GenericDataSourceException: SQL Exception while executing the
following:INSERT INTO jiraaction (ID, issueid, AUTHOR, actiontype, actionlevel, actionbody,
CREATED, actionnum) VALUES (?, ?, ?, ?, ?, ?, ?, ?) ([OraDriver] #7 Unexpected end of inputstream
in header.)
 at org.ofbiz.core.entity.jdbc.SQLProcessor.executeUpdate(SQLProcessor.java:375)
 at org.ofbiz.core.entity.GenericDAO.singleInsert(GenericDAO.java:115)
 at org.ofbiz.core.entity.GenericDAO.insert(GenericDAO.java:88)
 at org.ofbiz.core.entity.GenericHelperDAO.create(GenericHelperDAO.java:63)
 at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:470)
 at org.ofbiz.core.entity.GenericDelegator.create(GenericDelegator.java:450)
 at org.ofbiz.core.entity.GenericValue.create(GenericValue.java:77)
 at com.atlassian.jira.action.admin.ImportParser$1.run(ImportParser.java:191)
 at EDU.oswego.cs.dl.util.concurrent.PooledExecutor$Worker.run(PooledExecutor.java:751)
 at java.lang.Thread.run(Thread.java:595)
com.inet.ora.Ora3SQLException: [OraDriver] #7 Unexpected end of inputstream in header.
 at com.inet.ora.Ora3Factory.createSQLException(Unknown Source)
 at com.inet.ora.Ora3Factory.createSQLException(Unknown Source)
 at com.inet.ora.OraConnection.c(Unknown Source)
 at com.inet.ora.OraConnection.a(Unknown Source)
 at com.inet.ora.OraPreparedStatement.a(Unknown Source)
 at com.inet.ora.OraPreparedStatement.a(Unknown Source)
 at com.inet.ora.OraPreparedStatement.executeUpdate(Unknown Source)
```

Fix

This error was fixed by changing the **Set Clob** entry in the `server.xml` if using Standalone or the `jira.xml` file if using the WebApp edition of JIRA.

So instead of using:

```
connectionProperties="SetBigStringTryClob=true"
```

for this driver it needs to be replaced with:

```
connectionProperties="streamstolob=true"
```

As per this document on Oracle JDBC Manual

Store Workflow on Disk with Oracle 8

Atlassian support for Oracle 8 officially ends with the JIRA 3.6 release. Oracle 8 users are advised to upgrade to avoid the problem described on this page.

Applies to:	Oracle 8 users

Oracle has a 4000 character limitation on its VARCHAR2 field type. This causes problems for JIRA, which uses VARCHAR2 to store comments and 'workflows'. Whenever a comment or workflow exceeds 4000 characters (very easy in the case of workflows), JIRA breaks.

Oracle have a workaround for this problem in their 10g JDBC driver, which can be used with Oracle 9 and 10. Use of this workaround has been incorporated into the documentation.

This doesn't help Oracle 8 users. A workaround for the problem of > 4000 character workflows in Oracle 8 is to store these on disk, instead of in the database. This can be done as follows:

1. Run JIRA Standalone (with hsqldb database) to construct the workflow, and then:
2. Export the created workflow as XML, and save this to disk, eg custom-workflow.xml
3. In the JIRA instance that will use Oracle, edit WEB-INF/classes/workflows.xml and add a line:

   ```
   <workflow name="custom" type="resource" location="custom-workflow.xml"/>
   ```

   Where 'custom' is the workflow name.

4. Copy custom-workflow.xml to WEB-INF/classes/
5. Restart JIRA. The 'custom' workflow should appear in the list of available workflows.

JIRA and PostgreSQL

This page has general notes on connecting JIRA to Postgres. It supplements the official Postgres installation documentation.

- Setting up JIRA Standalone and PostgreSQL on Linux

Setting up JIRA Standalone and PostgreSQL on Linux

This is a step-by-step guide to getting JIRA running with PostgreSQL, on Ubuntu. The information should be helpful for other Linux distributions too.

Sun Java

Make sure that you have got Sun's Java Development Kit (JDK) installed. Ubuntu and Debian come with a GCJ variant which *will not work*. See Installing Java on Ubuntu or Debian.

Creating a jira system account

It's a good idea to create a dedicated user to run JIRA (as with all server software):

```
jturner:~$ sudo /usr/sbin/useradd --create-home --home-dir /usr/local/jira --shell /bin/bash jira
```

Set up a PostgreSQL user

PostgreSQL is very easy to set up on Ubuntu:

```
jturner:~$ sudo apt-get install postgresql-8.2 postgresql-client-8.2
Reading package lists... Done
Building dependency tree
....
 * Starting PostgreSQL 8.2 database server             [ OK ]
```

Now we create a `jira` PostgreSQL user for the `jira` user to connect as:

```
jturner:~$ sudo su - postgres
postgres:~$ createuser -P jira
Enter password for new role:
Enter it again:
Shall the new role be a superuser? (y/n) n
Shall the new role be allowed to create databases? (y/n) y
Shall the new role be allowed to create more new roles? (y/n) n
CREATE ROLE
```

We can now connect as our `jira` user and create a database. It's a good idea to version your databases so upgrading is safer, so here I've added _312 (indicating JIRA 3.12) to the database name:

```
postgres:~$ logout
jturner:~$ sudo su - jira
jira:~$ createdb jira_312
CREATE DATABASE
```

Configuring JIRA Standalone

Download JIRA Standalone and unpack it:

```
jturner:~$ sudo su - jira
jira:~$ tar zxvf /home/jturner/Desktop/atlassian-jira-enterprise-3.12-standalone.tar.gz >
/dev/null
jira:~$ ln -s atlassian-jira-enterprise-3.12-standalone/ jira-3.12
jira:~$ cd jira-3.12
jira:~/jira-3.12$
```

Now download the PostgreSQL JDBC driver from the website and place it in JIRA's `common/lib` directory.. As I installed PostgreSQL 8.2 and have JDK 1.6, I got the JDBC4 version:

jira:~/jira-3.12$ cd common/lib/
jira:~/jira-3.12/common/lib$ wget -q 'http://jdbc.postgresql.org/download/postgresql-8.2-507.jdbc4.jar'
jira:~/jira-3.12/common/lib$ ls -l postgresql-8.2-507.jdbc4.jar
~~rw-rr-~~ 1 jira jira 457436 2007-12-02 19:42 postgresql-8.2-507.jdbc4.jar
jira:~/jira-3.12/common/lib$

We can now configure the JDBC datasource:

```
jira:~/jira-3.12/common/lib$ cd ../../conf
jira:~/jira-3.12/conf$ cp server.xml server.xml.orig
jira:~/jira-3.12/conf$ vi server.xml
jira:~/jira-3.12/conf$ diff -u server.xml.orig server.xml
--- server.xml.orig     2007-12-16 10:50:06.000000000 +1100
+++ server.xml  2007-12-16 10:51:03.000000000 +1100
@@ -11,12 +11,10 @@

         <Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
           <Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
-            username="sa"
-            password=""
-            driverClassName="org.hsqldb.jdbcDriver"
-            url="jdbc:hsqldb:${catalina.home}/database/jiradb"
-            minEvictableIdleTimeMillis="4000"
-            timeBetweenEvictionRunsMillis="5000"
+            username="jira"
+            password="jira"
+            driverClassName="org.postgresql.Driver"
+            url="jdbc:postgresql://localhost/jira_312"
             maxActive="20" />

           <!-- NOTE: When a database server reboots or their is a network failure all the
connections in the
```

Configure JIRA to know what type of database it's connecting to:

```
jira:~/jira-3.12/conf$ cd ../atlassian-jira/WEB-INF/classes/
jira:~/jira-3.12/atlassian-jira/WEB-INF/classes$ cp entityengine.xml entityengine.xml.orig
jira:~/jira-3.12/atlassian-jira/WEB-INF/classes$ vim entityengine.xml
jira:~/jira-3.12/atlassian-jira/WEB-INF/classes$ diff -u entityengine.xml.orig entityengine.xml
--- entityengine.xml.orig       2007-12-16 10:52:25.000000000 +1100
+++ entityengine.xml    2007-12-16 10:53:00.000000000 +1100
@@ -97,8 +97,8 @@

         PLEASE DO NOT set the use-foreign-key* values to "true" as JIRA does not currently
support this.
      -->
-    <datasource name="defaultDS" field-type-name="hsql"
-      schema-name="PUBLIC"
+    <datasource name="defaultDS" field-type-name="postgres72"
+      schema-name="public"
       helper-class="org.ofbiz.core.entity.GenericHelperDAO"
       check-on-start="true"
       use-foreign-keys="false"
jira:~/jira-3.12/atlassian-jira/WEB-INF/classes$
```

Starting JIRA

Everything is now configured, and we can start JIRA.

```
jira:~/jira-3.12$ ./bin/startup.sh
If you encounter issues starting up JIRA Standalone Edition, please see the Troubleshooting guide
at http://confluence.atlassian.com/display/JIRA/Installation+Troubleshooting+Guide
Using CATALINA_BASE:   /usr/local/jira/jira-3.12
Using CATALINA_HOME:   /usr/local/jira/jira-3.12
Using CATALINA_TMPDIR: /usr/local/jira/jira-3.12/temp
Using JRE_HOME:       /usr/lib/jvm/java-6-sun
jira:~/jira-3.12$
```

> **No JAVA_HOME?**
> If you get the error:
>
> ```
> Neither the JAVA_HOME nor the JRE_HOME environment variable is defined
> At least one of these environment variable is needed to run this program
> ```
>
> You'll need to install the Sun JVM and set JAVA_HOME.

To see whether JIRA is starting properly, you should 'tail' the logs with:

```
jira:~/jira-3.12$ tail -f logs/catalina.out
2007-12-16 11:51:22,912 main [core.entity.jdbc.DatabaseUtil] Entity "Version" has no table in the
database
2007-12-16 11:51:22,919 main [core.entity.jdbc.DatabaseUtil] Entity "VersionControl" has no table
in the database
2007-12-16 11:51:22,923 main [core.entity.jdbc.DatabaseUtil] Entity "Workflow" has no table in the
database
2007-12-16 11:51:22,931 main [core.entity.jdbc.DatabaseUtil] Entity "WorkflowScheme" has no table
in the database
2007-12-16 11:51:22,936 main [core.entity.jdbc.DatabaseUtil] Entity "WorkflowSchemeEntity" has no
table in the database
2007-12-16 11:51:22,943 main [core.entity.jdbc.DatabaseUtil] Entity "Worklog" has no table in the
database
2007-12-16 11:51:25,653 main ERROR [jira.ext.fisheye.FishEyeConfigImpl] Invalid FishEye
configuration: FishEye Url must be specified.
2007-12-16 11:51:25,667 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Starting JIRA,
Version: 3.12-#298
2007-12-16 11:51:25,667 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Configured to use
database: postgres72
2007-12-16 11:51:25,669 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Could not find
Issue Cache Listener, adding.
2007-12-16 11:51:26,032 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Could not find
Mail Listener, adding.
2007-12-16 11:51:26,038 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Could not find
Mail Queue Service, adding.
2007-12-16 11:51:26,053 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl] Input Language has
not been set.  Setting to 'English'
2007-12-16 11:51:26,071 main INFO [atlassian.jira.upgrade.ConsistencyCheckImpl]

****************************************************************************************************
3.12 build: 298 started. You can now access JIRA through your web browser.
****************************************************************************************************
profiling] Using parameter [jira_profile]
[Filter: profiling] defaulting to off [autostart=false]
[Filter: profiling] Turning filter off [jira_profile=off]
2007-12-16 11:51:26,487 main [webwork.dispatcher.ServletDispatcher] Unable to find
'webwork.multipart.saveDir' property setting. Defaulting to javax.servlet.context.tempdir
16/12/2007 11:51:26 org.apache.coyote.http11.Http11BaseProtocol start
INFO: Starting Coyote HTTP/1.1 on http-8080
16/12/2007 11:51:26 org.apache.catalina.storeconfig.StoreLoader load
INFO: Find registry server-registry.xml at classpath resource
16/12/2007 11:51:26 org.apache.catalina.startup.Catalina start
INFO: Server startup in 5761 ms
```

The `Entity "..." has no table in the database` messages indicate that JIRA has found an empty database and is creating the necessary tables. Ie. the connection to PostgreSQL is working.

Congratulations, you have got JIRA installed. You can see it running at http://localhost:8080, where you can follow the setup wizard to complete the configuration.

How to Set Up SMTP Relay in Exchange 2007

There are a few known issues setting up a proper SMTP relay for our Exchange 2007 environment. The JIRA install was originally relaying off a different SMTP service before it was moved to Exchange 2007 server. This is occurring because SMTP Relaying not configured in Exchange 2007. The issue that has been encountered thus far are:

Depending on the configuration for the Receive Connector (i.e. SMTP relay) in Exchange 2007 will encounter one of the following problems:

1. Emails would relay to outside domains but the user's name (that created or commented on the task) would be stripped off the `From`

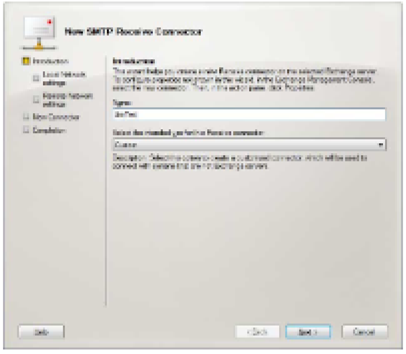
address in the email leaving only the "Jira-Replies" address.
2. Email will not relay to outside domains but the user's name would stay intact in the `From` address of the email.

Neither solution is optimal. While it is possible to set up an anonymous SMTP relay in Exchange 2007, for it to work properly there is one step that needs to be completed outside of the MMC. That command is listed below after the step by step instructions below.

Step by step instructions for setting up an SMTP relay in Exchange 2007 for JIRA.
Open up the Exchange MMC and select Hub Transport under Server Configuration on the left side. Split into two horizontal windows, it makes it easier to see a list of configured servers with the Hub Transport role at the top, and Receive Connectors at the bottom. Select whichever Hub Transport server is needed want this relay for and select the "New Receive Connector" in the action area on the right of the MMC. This should open the "New SMTP Receive Connector" wizard.

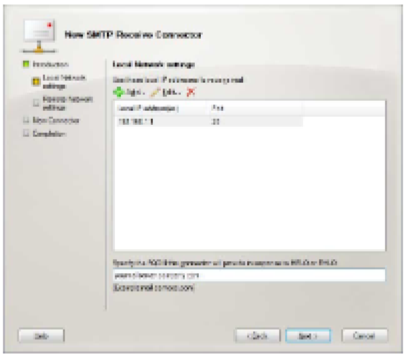
Thanks to Michael Athey for writing, documenting and providing all content for this knowledge base article.

New SMTP Receive Connector wizard



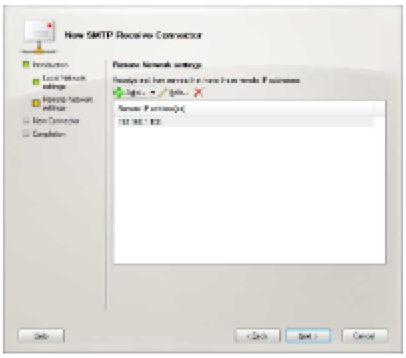
Main windows

1. Give the new relay a name (this example uses JiraTest as the name)
2. Make sure the drop down selection is set to "Custom" for "Select the intended use for this Receive connector"
3. Hit Next



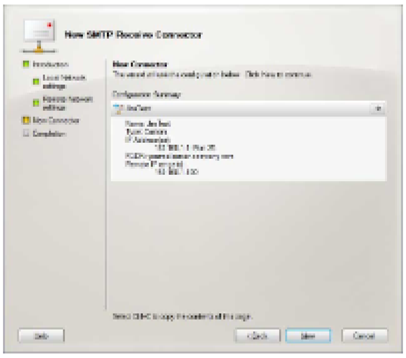
Local Network settings window

1. Select "Add", then choose "Specify an IP address"
2. Enter the IP address of the Exchange Hub Transport server
3. Keep the Port setting at 25
4. Hit OK
5. Delete the default "All available IPv4 addresses"
6. Enter the FQDN for the Exchange Hub Transport server
7. Hit Next



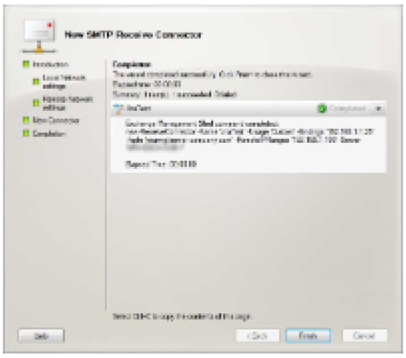
Remote Network settings window

1. Select "Add"
2. Enter the IP address of the JIRA server
3. Hit OK
4. Delete the default 0.0.0.0-255.255.255.255 range
5. Hit Next



New Connector window

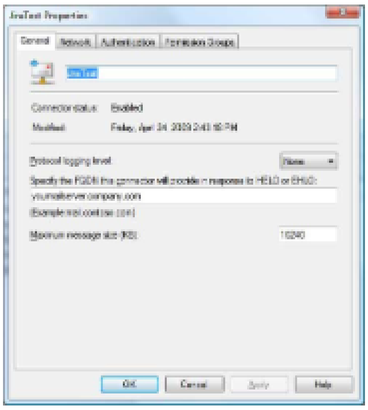
1. It should now be possible to see an overview of the connector being creating
2. Hit New



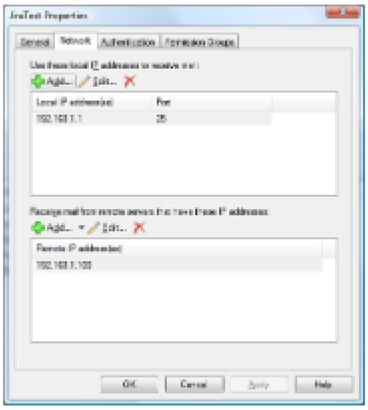
Completion window

1. Hopefully this shows the connector completed successfully
2. Hit Finish

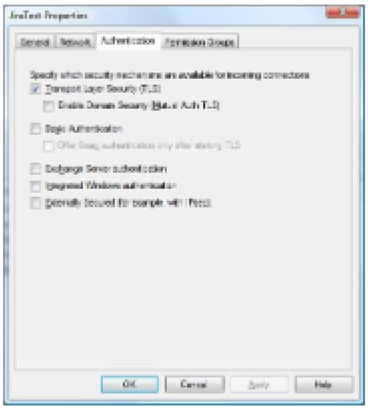
It should now be possible to should now see the connector listed on the bottom half of the screen with any others that may have created previously.
Double click the one that was just created to open its properties.



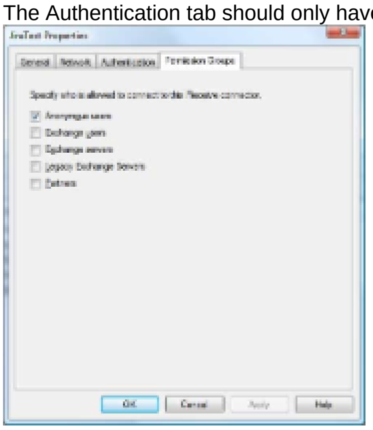
Verify the FQDN is correct in the General tab...



and that the IP addresses are also correct in the Network tab.

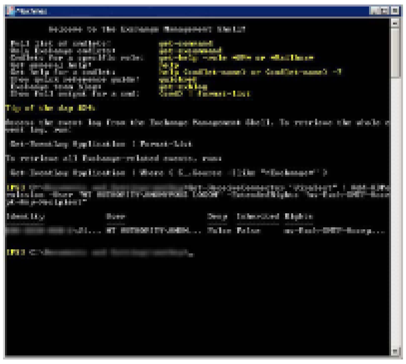


The Authentication tab should only have Transport Layer Security (TLS) selected only.



- Now go to the Permission Groups tab and select Anonymous Users, unselecting any other options, then hit OK.
- Normally that should be it, but it's not. There is one more additional step that which needs to be done in PowerShell.
- Open up the Exchange Management Shell and type the following, where "JiraTest" is the name of the connector that was just created.

```
Get-ReceiveConnector "JiraTest" | Add-ADPermission -User "NT AUTHORITY\ANONYMOUS LOGON"
-ExtendedRights "ms-Exch-SMTP-Accept-Any-Recipient"
```



What this command does is grant the relay permission to the Anonymous group for that connector. When simply selecting Anonymous Users through the GUI all that is assigned is the most common permissions, but it does not grant the relay permission. So now run the command through Management Shell.
After that is completed it is possible to start relaying JIRA's email through the Exchange 2007 setup.

Installation Troubleshooting Guide

This troubleshooting guide lists some of the common installation problems people run into

> If you have a question that is not answered here, please see our support page for information on how to seek help.

Issues

- My JIRA instance starts up with strange errors, what could be wrong?

My JIRA instance starts up with strange errors, what could be wrong?

If you're using the Windows XP, you may have extracted JIRA with the built-in unzip tool. This built-in unzip tool is broken - it silently fails to extract files with long names (see JRA-2153). Other users have also reported problems using WinRAR. Please use another tool like 7-zip or WinZIP to unpack JIRA.

If you're using Solaris, it also suffers from similar problems. You will need to use GNU tar to handle the long filenames.

Other users have reported similar problems using Midnight Commander.

Installing a LDAP server on Debian Linux for use with JIRA

This page contains an example of how to install LDAP on Linux. It's assumed that you are working towards LDAP authentication in JIRA or Confluence.

Install LDAP

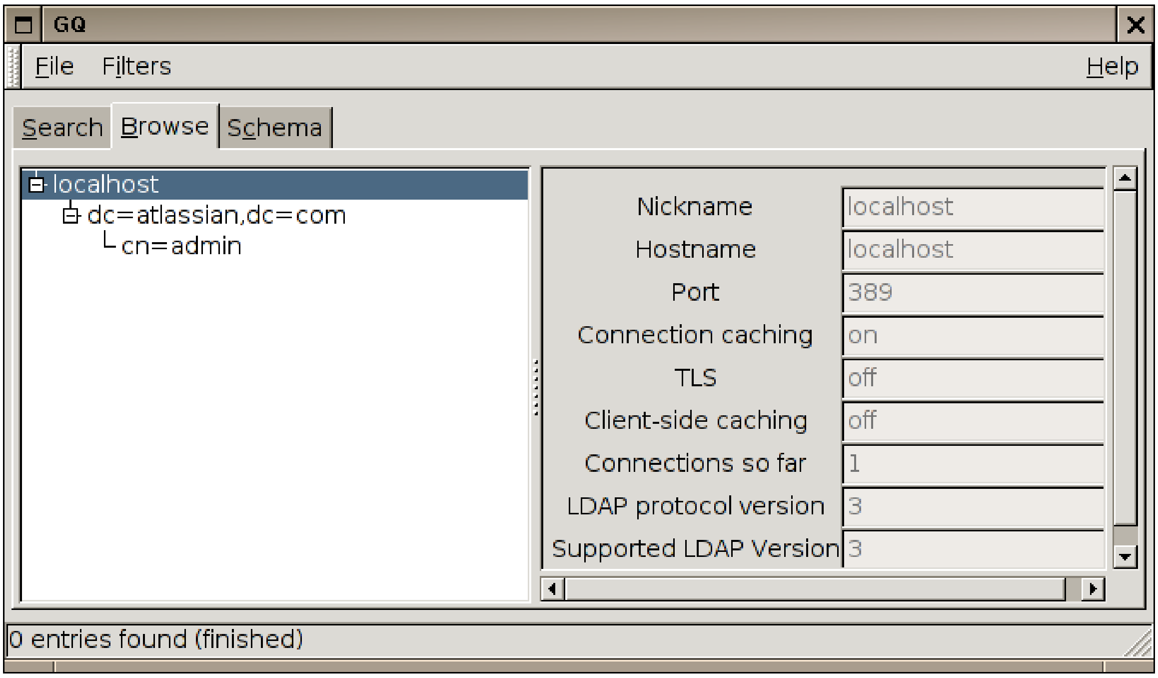
On Debian, an LDAP server can be installed with:

```
apt-get install slapd ldap-utils
```

Entering the following details when prompted (customize for your organization):

Domain name	atlassian.com
Organization name	Atlassian
Admin password	secret
LDAP v2 protocol	no

At this point, you might as well install a graphical LDAP browser, like 'gq'. Connecting anonymously, you'll see there is one entry, `cn=admin,dc=atlassian,dc=com`, created.



Create a schema

Rather than try to devise my own LDAP schema, I used the 'migrationtools' package to create a schema, and import system users from `/etc/passwd`:

```
apt-get install migrationtools
```

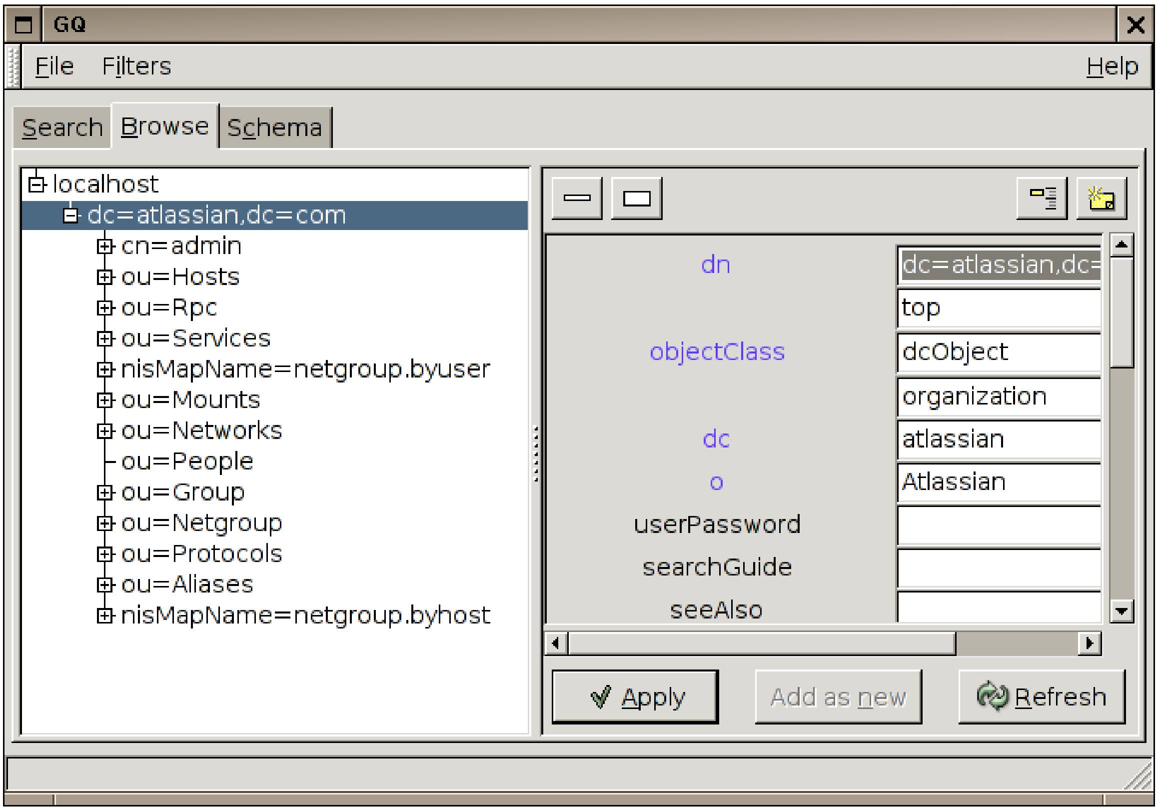
1. Edit `/etc/migrationtools/migrate_common.ph`, and make the following changes:

```
@@ -68,10 +68,10 @@
}

1. Default DNS domain
   -$DEFAULT_MAIL_DOMAIN = "padl.com";
   +$DEFAULT_MAIL_DOMAIN = "atlassian.com";

1. Default base
   -$DEFAULT_BASE = "dc=padl,dc=com";
   +$DEFAULT_BASE = "dc=atlassian,dc=com";

1. Turn this on for inetLocalMailReceipient
2. sendmail support; add the following to
   @@ -93,8 +93,8 @@
   #$USE_UTF8 = 1;

1. Uncomment these to avoid Debian managed system users and groups
   -#$IGNORE_UID_BELOW = 1000;
   -#$IGNORE_GID_BELOW = 100;
   +$IGNORE_UID_BELOW = 1000;
   +$IGNORE_GID_BELOW = 100;

1. And here's the opposite for completeness
   #$IGNORE_UID_ABOVE = 9999;
```

1. Run /usr/share/migrationtools/migrate_all_online

```
teacup:/usr/share/migrationtools# ./migrate_all_online.sh
Enter the X.500 naming context you wish to import into: [dc=padl,dc=com] dc=atlassian,dc=com
Enter the hostname of your LDAP server Connecting to an LDAP Directory: localhost
Enter the manager DN: [cn=admin,dc=atlassian,dc=com]:
Enter the credentials to bind with:
Do you wish to generate a DUAConfigProfile [yes|no]? no

Importing into dc=atlassian,dc=com...

Creating naming context entries...
Migrating aliases...
Migrating groups...
Migrating hosts...
Migrating networks...
Migrating users...
Migrating protocols...
Migrating rpcs...
Migrating services...
Migrating netgroups...
Migrating netgroups (by user)...
Migrating netgroups (by host)...
Importing into LDAP...
adding new entry "ou=Hosts,dc=atlassian,dc=com"

adding new entry "ou=Rpc,dc=atlassian,dc=com"

adding new entry "ou=Services,dc=atlassian,dc=com"

adding new entry "nisMapName=netgroup.byuser,dc=atlassian,dc=com"

adding new entry "ou=Mounts,dc=atlassian,dc=com"

adding new entry "ou=Networks,dc=atlassian,dc=com"

adding new entry "ou=People,dc=atlassian,dc=com"

adding new entry "ou=Group,dc=atlassian,dc=com"

adding new entry "ou=Netgroup,dc=atlassian,dc=com"

adding new entry "ou=Protocols,dc=atlassian,dc=com"

adding new entry "ou=Aliases,dc=atlassian,dc=com"

adding new entry "nisMapName=netgroup.byhost,dc=atlassian,dc=com"

adding new entry "cn=postmaster,ou=Aliases,dc=atlassian,dc=com"
ldapadd: update failed: cn=postmaster,ou=Aliases,dc=atlassian,dc=com
ldap_add: Undefined attribute type (17)
additional info: rfc822MailMember: attribute type undefined

/usr/bin/ldapadd: returned non-zero exit status
```

At this point, you should be able to browse the updated schema in a LDAP browser:



Add users

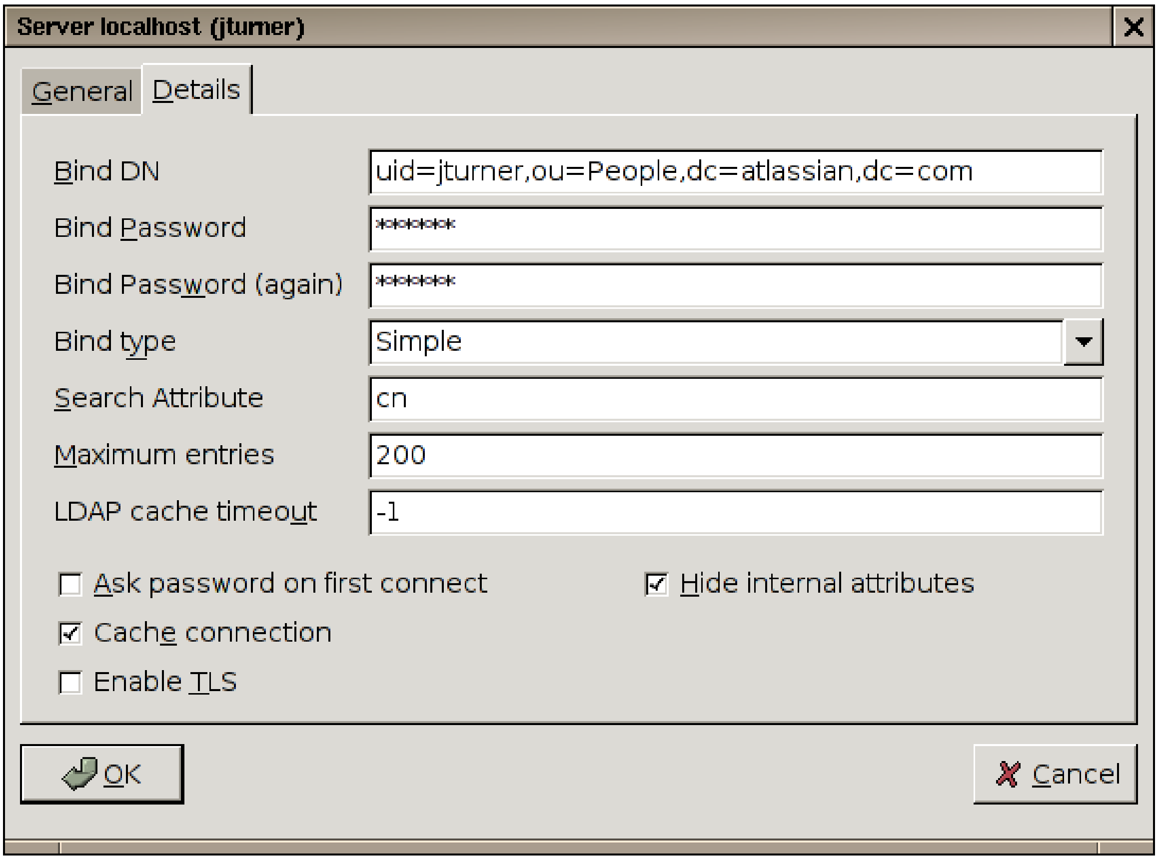
Still in the migrationtools directory, run:

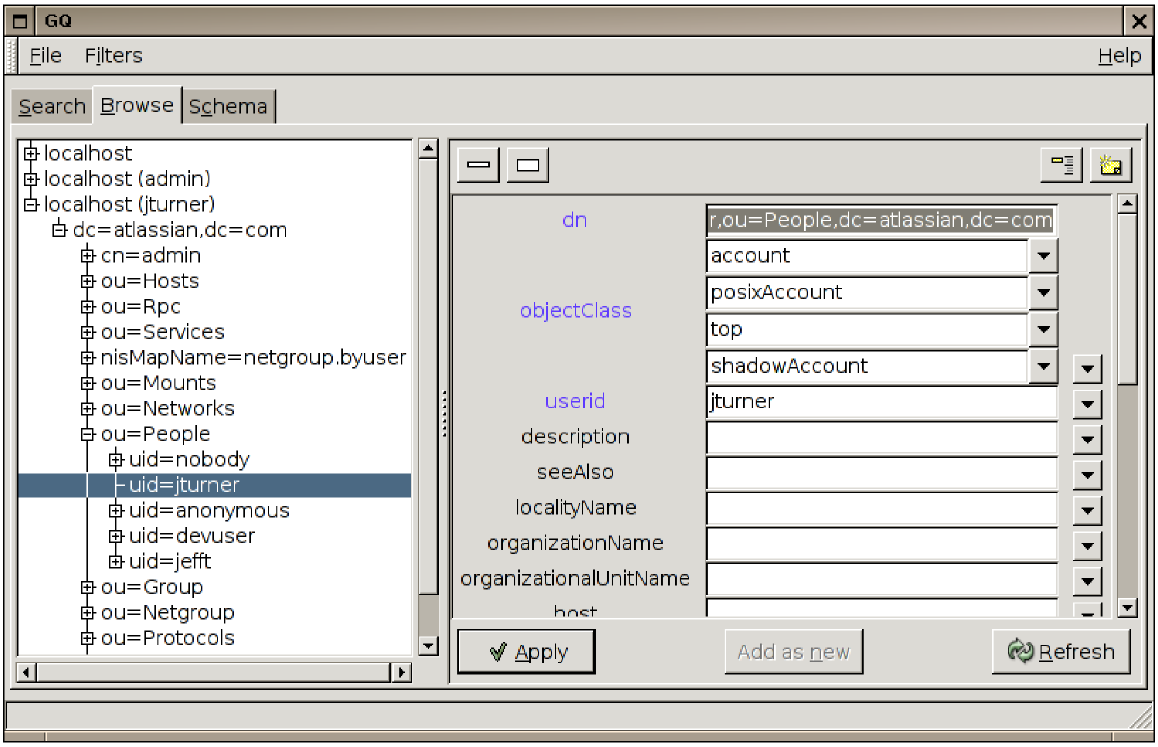
```
teacup:/usr/share/migrationtools# ./migrate_passwd.pl /etc/passwd | ldapadd -x -D "cn=admin,dc=atlassian,dc=com" -W
Enter LDAP Password:
adding new entry "uid=nobody,ou=People,dc=atlassian,dc=com"

adding new entry "uid=jturner,ou=People,dc=atlassian,dc=com"

adding new entry "uid=anonymous,ou=People,dc=atlassian,dc=com"

adding new entry "uid=devuser,ou=People,dc=atlassian,dc=com"

adding new entry "uid=jefft,ou=People,dc=atlassian,dc=com"
```

This creates users, but doesn't set passwords. We must do this manually:

```
teacup:/usr/share/migrationtools# ldappasswd -x -v -S -W -D "cn=admin,dc=atlassian,dc=com"
"uid=jturner,ou=People,dc=atlassian,dc=com"
New password:
Re-enter new password:
Enter LDAP Password:
ldap_initialize( <DEFAULT> )
Result: Success (0)
```

You should now be able to connect anonymously, or as an authenticated user:





Notes

- Some customers have found it helpful to use Likewise Open for LDAP authentication, as it is easy to install and setup.

Installing Java on Ubuntu or Debian

Some linux distributions (notably Debian and Ubuntu) come with a free version of Java called GIJ (from the GCJ project) pre-installed:

```
jturner:~$ java -version
java version "1.4.2"
gij (GNU libgcj) version 4.1.2 (Ubuntu 4.1.2-0ubuntu5)

Copyright (C) 2006 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
jturner:~$
```

Unfortunately GCJ is incomplete, and unable to run Atlassian Java applications without problems.

The solution is to install Sun's version of Java:

```
jturner:~$ sudo apt-get install sun-java6-jdk
Password:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  java-common libltdl3 odbcinst1debian1 sun-java6-bin sun-java6-jre unixodbc
Suggested packages:
  equivs sun-java6-demo sun-java6-doc sun-java6-source sun-java6-plugin ia32-sun-java6-plugin
sun-java6-fonts
  ttf-sazanami-gothic ttf-sazanami-mincho libmyodbc odbc-postgresql libct1
Recommended packages:
  gsfonts-x11
The following NEW packages will be installed:
  java-common libltdl3 odbcinst1debian1 sun-java6-bin sun-java6-jdk sun-java6-jre unixodbc
0 upgraded, 7 newly installed, 0 to remove and 3 not upgraded.
Need to get 42.6MB of archives.
After unpacking 127MB of additional disk space will be used.
Do you want to continue [Y/n]? y

....

Setting up java-common (0.25ubuntu2) ...

Setting up libltdl3 (1.5.22-4) ...

Setting up odbcinst1debian1 (2.2.11-13) ...

Setting up unixodbc (2.2.11-13) ...

Setting up sun-java6-bin (6-00-2ubuntu2) ...

Setting up sun-java6-jre (6-00-2ubuntu2) ...

Setting up sun-java6-jdk (6-00-2ubuntu2) ...

jturner:~$
```

After doing this, make sure the correct version of Java is in use by running `java -version`:

```
jturner:~$ java -version
java version "1.6.0"
Java(TM) SE Runtime Environment (build 1.6.0-b105)
Java HotSpot(TM) Server VM (build 1.6.0-b105, mixed mode)
jturner:~$
```

If the GCJ Java is still being used, you will need to explicitly set Sun's Java as the default:

```
jturner:~$ sudo update-alternatives --config java

There are 2 alternatives which provide `java'.

  Selection    Alternative
-----------------------------------------------
*          1    /usr/bin/gij-wrapper-4.1
 +         2    /usr/lib/jvm/java-6-sun/jre/bin/java

Press enter to keep the default[*], or type selection number: 2
Using `/usr/lib/jvm/java-6-sun/jre/bin/java' to provide `java'.
jturner:~$
```

Setting JAVA_HOME

Some programs like Tomcat (bundled with most Atlassian products) need a JAVA_HOME variable set, so they know where Java is installed. This can be set system-wide in `/etc/profile`:

```
jturner:~$ sudo su -
Password:
root:~# cat >> /etc/profile
JAVA_HOME=/usr/lib/jvm/java-6-sun
export JAVA_HOME
root:~#
```

The variable will be set for new terminals:

```
jturner:~$ echo $JAVA_HOME
/usr/lib/jvm/java-6-sun
jturner:~$
```

Is Clustering or Load Balancing JIRA Possible

Atlassian recommends working with a partner to provide either of these configurations.

Does JIRA support clustering for scaling?

Not at this time. Currently, splitting JIRA into multiple instances is our recommended means of scaling JIRA — please see Splitting a JIRA instance.

Note: If you wish to run JIRA across multiple nodes you will need a license for each node. You can find our discounting policy here.

Does JIRA support high-availability?

If you are interested in clustering for hardware failover, you can configure a distributed database, load balancer front-end and two separate servers. The primary JIRA instance runs on the main server, while the second server contains an unstarted, free development license instance of JIRA. The load balancer directs 100% of requests to the primary as long as it is responsive, but if the primary server goes down, the load balancer starts the backup instance and directs all requests there until manually reset.

There are several problems with this model. Specifically, attachments and indexes will be out of date on the backup server. You may be able to institute a script to update these.

java.lang.NoClassDefFoundError

If you get the following error when starting JIRA:

> *"java.lang.NoClassDefFoundError:com/atlassian/jira/issue/search/parameters/lucene/SingleFieldMultiValueLuceneParameter"*

this means that Windows XP's unzip is broken. See the Installation Guide for how to avoid this.

JVM and Appserver configuration info

LicenseFactory error after upgrading JIRA

If, after upgrading JIRA, you get an error containing 'com/atlassian/jira/license/LicenseFactory', it means that your application server is using old cached JSPs from the previous JIRA version. Please delete the directory where the app server keeps these (the **work/** directory in Tomcat; the **application-deployments/** directory in Orion; etc), and restart.

Logging request headers

If you are having trouble authenticating to JIRA or a web application, it can be useful to log the details of all HTTP request headers that are being sent to the web application. If your application server is Tomcat, you can do this with the **Request Dumper Valve**.

Add the following entry to the `<Engine>` section of your Tomcat `conf/server.xml` file:

```
<Valve className="org.apache.catalina.valves.RequestDumperValve"/>
```

Then restart JIRA.

You will get **lots** of entries like the following in your `logs/catalina.out` log file:

```
12/11/2007 16:27:06 org.apache.catalina.valves.RequestDumperValve invoke
INFO:             header=user-agent=Mozilla/5.0 (X11; U; Linux x86_64; en-US; rv:1.8.1.6)
Gecko/20071008 Ubuntu/7.10 (gutsy) Firefox/2.0.0.6
12/11/2007 16:27:06 org.apache.catalina.valves.RequestDumperValve invoke
INFO:
header=accept=text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,image/p
16:27:06 org.apache.catalina.valves.RequestDumperValve invoke
INFO:             header=accept-language=en-us,en;q=0.5
12/11/2007 16:27:06 org.apache.catalina.valves.RequestDumperValve invoke
INFO:             header=accept-encoding=gzip,deflate
12/11/2007 16:27:06 org.apache.catalina.valves.RequestDumperValve invoke
INFO:             header=accept-charset=ISO-8859-1,utf-8;q=0.7,*;q=0.7
12/11/2007 16:27:06 org.apache.catalina.valves.RequestDumperValve invoke
INFO:             header=keep-alive=300
12/11/2007 16:27:06 org.apache.catalina.valves.RequestDumperValve invoke
INFO:             header=connection=keep-alive
```

Running multiple instances of JIRA on one machine

It's possible to run multiple JIRA instances on one machine as long as the instance completes the following requirements:

- Not sharing the same listening or shutdown port of any other instance or service.
- Not sharing the same database with another instance.
- When using services within windows, using 2 different windows service definitions.
- Not sharing the same JIRA home folder.
- Not deploying multiple instances using a Single Tomcat Application Container.
- Having separate licenses for each of the instances.

By default, JIRA Standalone runs on port **8080** (and hence is available at (http://`<yourserver>`:8080, eg. http://localhost:8080).

If you want to run another JIRA instance but already has a service claiming port **8080**, there will be a conflict, and JIRA will fail to start. You may see errors like this:

```
LifecycleException:  Protocol handler initialization failed: java.net.BindException: Address
already in use:8080
```

This can be fixed by changing JIRA to use another listening port (eg. **8090**) and shutdown port (eg. **8015**). This is done by editing `conf\server.xml` (eg. in Wordpad). The start of the file looks like:

```
<Server port="8005" shutdown="SHUTDOWN">

  <Service name="Catalina">

    <Connector port="8080"
      maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
      enableLookups="false" redirectPort="8443" acceptCount="100" connectionTimeout="20000"
disableUploadTimeout="true" />
```

Here, change the shutdown port from "**8005**" to "**8015**" and change the listening port from "**8080**" to "**8090**" (or some other free port — see below).

Then restart JIRA (bin\shutdown.bat; bin\startup.bat) and point a browser to http://`<yourserver>`:**8090** (eg. http://localhost:8090).

> If you are running on a Unix server and bind the ports below 1024 (such as port 80 for example), you will **need to start JIRA as root** in order to successfully bind to the port

Which port number should I choose?

If you are not sure which port number to choose, use a tool such as *netstat* to determine which port numbers are free to use by JIRA. The highest port number that can be used is 65535 because it is the highest number which can be represented by an unsigned 16 bit binary number. The Internet Assigned Numbers Authority (IANA) lists the registration of commonly used port numbers for well-known Internet services, it's advisable to avoid any of those ports.

Solaris ClassNotFoundException

After unpacking the WAR on Solaris, JIRA fails to start with a ClassNotFoundException once deployed. How is this fixed?

On Solaris, the default **tar** utility should be avoided as it cannot handle long filenames. **GNU tar** should be used instead in order to handle long filenames found within the JIRA distribution, it can usually be found at:

```
/usr/sfw/bin/
```

Stacktrace example:

```
2006-11-15 15:43:27,539 ERROR [ContainerBase.[Catalina].[localhost].[/]] Error configuring
application listener of class com.atlassian.jira.upgrade.ConsistencyLauncher
java.lang.ClassNotFoundException: com.atlassian.jira.upgrade.ConsistencyLauncher
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1332)
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1181)
            at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3617)
            at org.apache.catalina.core.StandardContext.start(StandardContext.java:4104)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardHost.start(StandardHost.java:718)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardEngine.start(StandardEngine.java:442)
            at org.apache.catalina.core.StandardService.start(StandardService.java:450)
            at org.apache.catalina.core.StandardServer.start(StandardServer.java:683)
            at org.apache.catalina.startup.Catalina.start(Catalina.java:537)
            at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
            at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
            at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
            at java.lang.reflect.Method.invoke(Method.java:324)
            at org.apache.catalina.startup.Bootstrap.start(Bootstrap.java:271)
            at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:409)
2006-11-15 15:43:27,582 ERROR [ContainerBase.[Catalina].[localhost].[/]] Error configuring
application listener of class com.atlassian.jira.upgrade.UpgradeLauncher
java.lang.ClassNotFoundException: com.atlassian.jira.upgrade.UpgradeLauncher
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1332)
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1181)
            at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3617)
            at org.apache.catalina.core.StandardContext.start(StandardContext.java:4104)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardHost.start(StandardHost.java:718)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardEngine.start(StandardEngine.java:442)
            at org.apache.catalina.core.StandardService.start(StandardService.java:450)
            at org.apache.catalina.core.StandardServer.start(StandardServer.java:683)
            at org.apache.catalina.startup.Catalina.start(Catalina.java:537)
            at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
            at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
            at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
            at java.lang.reflect.Method.invoke(Method.java:324)
            at org.apache.catalina.startup.Bootstrap.start(Bootstrap.java:271)
            at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:409)
2006-11-15 15:43:27,592 ERROR [ContainerBase.[Catalina].[localhost].[/]] Error configuring
application listener of class com.atlassian.jira.scheduler.JiraSchedulerLauncher
java.lang.ClassNotFoundException: com.atlassian.jira.scheduler.JiraSchedulerLauncher
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1332)
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1181)
            at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3617)
```

```
            at org.apache.catalina.core.StandardContext.start(StandardContext.java:4104)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardHost.start(StandardHost.java:718)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardEngine.start(StandardEngine.java:442)
            at org.apache.catalina.core.StandardService.start(StandardService.java:450)
            at org.apache.catalina.core.StandardServer.start(StandardServer.java:683)
            at org.apache.catalina.startup.Catalina.start(Catalina.java:537)
            at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
            at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
            at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
            at java.lang.reflect.Method.invoke(Method.java:324)
            at org.apache.catalina.startup.Bootstrap.start(Bootstrap.java:271)
            at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:409)
2006-11-15 15:43:27,602 ERROR [ContainerBase.[Catalina].[localhost].[/]] Error configuring
application listener of class com.atlassian.jira.soap.axis.JiraAxisHttpListener
java.lang.ClassNotFoundException: com.atlassian.jira.soap.axis.JiraAxisHttpListener
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1332)
            at org.apache.catalina.loader.WebappClassLoader.loadClass(WebappClassLoader.java:1181)
            at org.apache.catalina.core.StandardContext.listenerStart(StandardContext.java:3617)
            at org.apache.catalina.core.StandardContext.start(StandardContext.java:4104)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardHost.start(StandardHost.java:718)
            at org.apache.catalina.core.ContainerBase.start(ContainerBase.java:1012)
            at org.apache.catalina.core.StandardEngine.start(StandardEngine.java:442)
            at org.apache.catalina.core.StandardService.start(StandardService.java:450)
            at org.apache.catalina.core.StandardServer.start(StandardServer.java:683)
            at org.apache.catalina.startup.Catalina.start(Catalina.java:537)
            at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
            at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
            at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
            at java.lang.reflect.Method.invoke(Method.java:324)
            at org.apache.catalina.startup.Bootstrap.start(Bootstrap.java:271)
            at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:409)
```

```
2006-11-15 15:43:27,606 ERROR [ContainerBase.[Catalina].[localhost].[/]] Skipped installing
application listeners due to previous error(s)
```

Windows cannot find -Xms128m

When running startup.bat I get an error message: "Windows cannot find '-Xms128m'"

This error message means that the Java JDK (Java Development Kit) is not installed or the **JAVA_HOME** environment variable has not been set correctly. Please refer to the Java installation guide.

JIRA Development Hub

Looking for plugins? To find existing plugins and extensions written by the community, visit the Atlassian Plugin Exchange and the JIRA Extensions space.

This documentation applies to JIRA 4.0 and above. If you are developing a plugin for JIRA 3.x, please see the previous documentation.

Getting started developing with JIRA

So you're thinking of customizing JIRA? Maybe you want to change the way JIRA looks? Or create a new custom field type? Or add some new Workflow transitions? Well, you've come to the right place. Here are all the resources to get started developing for JIRA.

1. Getting started with Atlassian plugins

This tutorial will show you how to set up your development environment, create an empty plugin template, and the basic principles of building, debugging, and testing a plugin. It will take you through the prerequisites and introduce you to some of the resources that Atlassian provides for plugin developers.

2. The JIRA Plugin Guide

These documents are specifically about plugins for JIRA. There's a page for each plugin module type that JIRA supports. You can combine multiple plugin modules inside a single plugin to accomplish complex tasks.

3. Understanding how JIRA works

These documents go some of the way to explaining what's really going on inside JIRA. Some of this information is useful to plugin developers. Other pieces are more relevant to the JIRA development team, but we've published them here in the spirit of open documentation.

Want to modify the JIRA source code?

You'll want to download a copy of the source distribution and then follow the instructions in Building JIRA from Source.

1. Building JIRA from Source
2. Developer Tutorials

Help and documentation

- The JIRA Documentation
- The JIRA API
- The JIRA Developer FAQ
- The JIRA Developer Forums
- The JIRA Community Space
- Atlassian Partner listing

Other resources for developers:

Cross-application frameworks and tools:

- Plugin SDK
- Developer Network
- Plugin Development Platform
- Gadget Development
- Javadoc
- REST APIs
- Shared Access Layer (SAL)
- User Interface Library (AUI/AJS)

Application-specific documentation:

- Bamboo Developer Documentation
- Confluence Developer Documentation
- Crowd Developer Documentation
- FishEye/Crucible Developer Documentation
- JIRA Developer Documentation

News and resources:

- Developer Blog
- Forums / Mailing Lists

News and forums:

- Atlassian Forums
- Atlassian Developer blog

JIRA Plugin Guide

JIRA includes a plugin system that enables developers to write plugins which enhance JIRA's functionality in various ways.

On this page:

- A Plugin Overview
    - JIRA Plugin Module Types
    - Built-in JIRA system plugins
- Setting up a Plugin Project
    - Deploying a JIRA Plugin

A Plugin Overview

A JIRA plugin is a single JAR containing code, a plugin descriptor (XML) and usually some Velocity template files to render HTML.

The plugin descriptor is the only mandatory part of the plugin. It must be called **atlassian-plugin.xml** and be located in the root of your JAR file.

Each plugin consists of one or more **plugin modules**. These are of different types (for example a report, or a portlet) and each has an individual XML element describing it. Each module is described below together with the XML element required for it.

Here is a sample of the descriptor with highlighted elements:

```
<!-- the plugin key must be unique, think of it as the 'package' of the plugin -->
<atlassian-plugin key="com.atlassian.plugin.sample" name="Sample Plugin" plugins-version="2">
    <!-- a short block describing the plugin itself -->
    <plugin-info>
        <description>This is a brief textual description of the plugin</description>
        <!-- the version of the plugin -->
        <version>1.1</version>
        <!-- details of the plugin vendor -->
        <vendor name="Atlassian Software Systems Pty Ltd" url="http://www.atlassian.com"/>
    </plugin-info>

    . . . 1 or more plugin modules . . .
</atlassian-plugin>
```

Each plugin has a **plugin key** which is unique among all plugins (eg "com.atlassian.plugin.sample"). Semantically this equates to the package of a Java class. Each module within the plugin also has a **module key** which is unique within the plugin (eg "myreport"). Semantically this equates to the class name of a Java class.

The plugin key + module key are combined to make the **complete key** of the plugin module (combining the examples above, the complete key would be "com.atlassian.plugin.sample:myreport"). Note: a `:` is used to separate the plugin key from the module key.

Each plugin is either of type "**Plugins1**" or "**Plugins2**". For details, please see Differences between Plugins1 and Plugins2.

JIRA Plugin Module Types

The following types of plugin modules are supported by JIRA

Module Type	Since version...	Documentation	Description
portlet	3.0	Portlet Plugin Module	Add new portlets to JIRA. **Deprecated** - please use Gadgets
gadget	4.0	Gadget Plugin Module	Add a "Gadget" (portlet) to JIRA's dashboard
report	3.0	Report Plugin Module	Add new reports to JIRA
customfield-type	3.0	Custom Field Plugin Module	Add new types of fields to JIRA
customfield-searcher	3.0	Custom Field Plugin Module	Add new types of field searchers to JIRA
project-tabpanel	3.0	Project Tab Panel Plugin Module	Add new tabs to the Browse 'Project' screen
component-tabpanel	3.10	Component Tab Panel Plugin Module	Add new tabs to the Browse 'Component' screen
version-tabpanel	3.10	Version Tab Panel Plugin Module	Add new tabs to the Browse 'Version' screen
issue-tab panel	3.0	Issue Tab Panel Plugin Module	Add new tabs to the View Issue screen
issue-operation	3.4	Issue Operations Plugin Module	Add new operations to the View Issue screen
resource	3.5	Downloadable Plugin Resources	Downloadable resources from within any plugin
web-resource	3.7	Web Resource Plugin Module	Downloadable resources from within any plugin
servlet	3.5	Servlet Plugin Module	A standard Java servlet deployed within a JIRA plugin
servlet-context-listener	4.0	Servlet Context Listener Plugin Module	Deploy Java Servlet context listeners as a part of your plugin
servlet-context-param	4.0	Servlet Context Parameter Plugin Module	Set parameters in the Java Servlet context shared by your plugin's servlets, filters, and listeners
servlet-filter	4.0	Servlet Filter Plugin Module	Deploy Java Servlet filters as a part of your plugin
webwork	3.1	Webwork plugin module	XWork/Webwork actions and views bundled with a plugin, enabling user interaction
component	3.0	Component Plugin Module	Adds components to JIRA's component system
component-import	4.0	Component Import Plugin Module	Accesses Java components shared by other plugins
module-type	4.0	Module Type Plugin Module	Dynamically adds new plugin module types to the plugin framework
rest	4.0	REST Plugin Module Type	Exposes services and data entities as REST APIs
rpc-soap	3.0	RPC Endpoint Plugin Module	Deploys a SOAP service within JIRA
rpc-xmlrpc	3.0	RPC Endpoint Plugin Module	Deploys an XML-RPC service within JIRA
jqlfunction	4.0	JQL Function Plugin Module	Adds a new function to JIRA's Advanced Search (JQL)
search-request-view	3.7	Search Request View Plugin Module	Add a new view in the Issue Navigator
user-format	3.13	User Format Plugin Module	Implements custom behaviours for user details.
workflow-condition	3.0	Workflow Plugin Modules	Add new conditions to the JIRA workflow
workflow-validator	3.0	Workflow Plugin Modules	Add new validations to the JIRA workflow
workflow-function	3.0	Workflow Plugin Modules	Add new post functions to the JIRA workflow
web-item	3.7	Web Fragments	Add new links into the JIRA web interface
web-section	3.7	Web Fragments	Add new tabs/sections into the JIRA web interface

Built-in JIRA system plugins

A number of functions and areas within JIRA 3 are shipped as built in plugins. These can also be useful for plugin developers who want to know more about how to create their own plugins, as they showcase the functionality that can be built.

The system plugins are referenced from the following files (located in `/WEB-INF/classes`:

- `system-workflow-plugin.xml` - the built in workflow conditions, validators and functions.
- `system-customfieldtypes-plugin.xml` - the built in custom field types.
- `system-project-plugin.xml` - the built in project tab panels (ie roadmap, change log and popular issues).
- `system-reports-plugin.xml` - the built in system reports (ie time tracking and developer workload reports).
- `system-portlets-plugin.xml` - all of the built in system portlets.

and in other `system-*-plugin.xml` files in that directory.

Setting up a Plugin Project

Please refer to How to Build an Atlassian Plugin using the Atlassian Plugin SDK to set up your development environment and create a plugin template.

Deploying a JIRA Plugin

Please see Managing JIRA's Plugins for instructions on how to deploy a JIRA plugin.

Component Plugin Module

Introduction

A component plugin module defines a Java component which will be injected into the component system used by your plugin.
The details differ depending on whether you are writing a Plugins1 or Plugins2 plugin.

Components under Plugins1

A component in a Plugins1 plugin will be installed into JIRA's core component manager (PicoContainer).
This means it will be inherently "public", that is available to other plugins to have injected into them.
Note, however, that these other plugins have no way to declare their dependency on your plugin, and so they would just throw errors at runtime if your plugin is unavailable.

A new component is simple to define as follows:

```
<component key="userService" name="User Service"
    class="com.atlassian.jira.rpc.soap.UserServiceImpl">
    <interface>com.atlassian.jira.rpc.soap.UserService</interface>
</component>
```

This example here defines a component implementing UserService that is put into the PicoContainer to inject into any other plugin modules. If you include this component module in your plugin, then your other plugin modules can define a constructor with a UserService parameter and this implementation will be provided to your plugin module automatically.

These components allow you to simplify the creation and management of your plugin modules quite a lot.

Components under Plugins2

A component in a Plugins2 plugin will be installed into the Spring container for your plugin.
It will be "private" by default. This means classes in your plugin will be able to get that component dependency-injected, but other plugins will not.
However the component can be declared public, which allows other Plugins2 plugins to import a dependency on your component.

See the Plugins2 Component Plugin Module documentation for details.

Component Import Plugin Module

> The Component Import plugin module is available only for OSGi-based plugins in JIRA 4.0 and above.

Purpose of this Module Type

Component Import plugin modules allow you to access Java components shared by other plugins, even if the component is upgraded at runtime.

Configuration

The root element for the Component Import plugin module is **`component-import`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
interface	✓	The Java interface of the component to import. This attribute is only required if the `interface` elements are not used.	N/A
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. The identifier of the component to import.	N/A
name		The human-readable name of the plugin module. I.e. the human-readable name of the component to import.	The plugin key.
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false
filter		The LDAP filter to use to match public components (OSGi services). Note: The format of the filter must be a valid LDAP filter. (Plugin Framework 2.3 and later.)	

Elements

Name	Required	Description	Default
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. I.e. the description of the component to import.	
interface	✓	The Java interface under which the component to retrieve is registered. This element can appear zero or more times, but is required if the `interface` attribute is not used.	N/A

Example

Here is an example `atlassian-plugin.xml` file containing a single component import:

It consumes a component made available via a different plugin:

Here is an example of matching via an LDAP filter. Since a component import is really just matching an OSGi service, you can optionally specify an LDAP filter to match the specific service. Here is an example that matches a dictionary service that provides a `language` attribute that equals `English`:

Notes

Some information to be aware of when developing or configuring a Component Import plugin module:

- Component imports, at installation time, are used to generate the `atlassian-plugins-spring.xml` Spring Framework configuration file, transforming Component Import plugin modules into OSGi service references using Spring Dynamic Modules.
- The imported component will have its bean name set to the component import key, which may be important if using 'by name' dependency injection.
- If you wish to have more control over how imported services are discovered and made available to your plugin, you can create your own Spring configuration file containing Spring Dynamic Modules elements, stored in `META-INF/spring` in your plugin jar. This is recommended if you are needing to import multiple services that implement an interface, for example.
- You can use component imports to customise the bean name of host components, particularly useful if you plan to use 'by name' dependency injection.

Component Tab Panel Plugin Module

⚠ The Component Tab Panel plugin module is available in JIRA version 3.10 and later.

The Component Tab Panel plugin module allows you to add new tabs to the 'Browse Component' page.

All these tab panels ('Open Issues', 'Road Map', 'Change Log' and 'Popular Issues') are implemented as plugins. New component tab panels can be implemented to display component-specific info.

Here is an example panel module descriptor:

```
<!--
The class defined should implement
com.atlassian.jira.plugin.componentpanel.ComponentTabPanel
and it may be useful to use the functionality provided by
com.atlassian.jira.plugin.componentpanel.impl.GenericTabPanel.
-->
    <component-tabpanel key="component-openissues-panel"
i18n-name-key="componentpanels.openissues.name"
                        name="Open Issues Panel"
class="com.atlassian.jira.plugin.componentpanel.impl.GenericTabPanel">
        <description key="componentpanels.openissues.description">Show the open issues for this
component.</description>
        <label key="common.concepts.openissues"/>
        <!-- this is a number defining the order of all panels.
             The system panels are 10, 20, 30 and 40. -->
        <order>10</order>
        <!-- this template produces the HTML for the panel -->
        <resource type="velocity" name="view"

location="templates/plugins/jira/projectentitypanels/openissues-component-panel.vm"/>
        <!-- this properties files contains i18n keys for the panel -->
        <resource type="i18n" name="i18n"
location="com.atlassian.jira.plugins.componentpanels.openissues"/>
    </component-tabpanel>
```

Configuring Plugins with Object Configurable Parameters

JIRA Report plugins use the `com.atlassian.configurable.ObjectConfigurable` class to simplify the process of requesting configuration parameters from users. These parameters are specified in `atlassian-plugin.xml` as part of the report module. For example, the time tracking report that ships with JIRA has the following input parameters:

```
<properties>
    <property>
        <key>versionId</key>
        <name>common.concepts.version</name>
        <description>report.timetracking.version.description</description>
        <type>select</type>
        <values class="com.atlassian.jira.portal.VersionOptionalValuesGenerator"/>
    </property>
    <property>
        <key>sortingOrder</key>
        <name>report.timetracking.sortingorder</name>
        <description>report.timetracking.sortingorder.description</description>
        <type>select</type>
        <values class="com.atlassian.jira.portal.SortingValuesGenerator"/>
    </property>
    <property>
        <key>completedFilter</key>
        <name>report.timetracking.filter</name>
        <description>report.timetracking.filter.description</description>
        <type>select</type>
        <values class="com.atlassian.jira.portal.FilterValuesGenerator"/>
    </property>
</properties>
```

Types

Types are defined in the `com.atlassian.configurable.ObjectConfigurationTypes` class. Available types are:

Type	Input HTML Type
string	text box
long	text box
select	select box
multiselect	multi-select box
hidden	hidden field
date	text box with calendar pop-up
user	text box with user picker pop-up
text	text area
checkbox	checkbox
cascadingselect	cascading select boxes

Values

Values can be provided by a value provider class that must subclass `com.atlassian.configurable.ValuesGenerator`. Acceptable values can also be hardcoded into the module descriptor:

```
<values>
    <value>
        <key>KEY1</key>
        <value>somevalue</value>
    </value>
    <value>
        <key>KEY2</key>
        <value>someothervalue</value>
    </value>
</values>
```

Defaults

You can specify a default for all types as well:

```
<value>
    <key>key.with.default</key>
    ...
    <default>5</default>
</value>
```

Custom Field Plugin Module

Purpose of this Module Type

The custom field plugin module allows you to add new custom field types and searchers to JIRA.

1. Custom field types - these define the type of a custom field
2. Custom field seachers - these define the ways a custom field type can be searched

Custom Field Type Configuration

The root element for the custom field type plugin module is `customfield-type`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class	✓	The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the custom field type module. Classes must implement `com.atlassian.jira.issue.customfields.CustomFieldType`, but there are several concrete implementations that should address the majority of users' needs, including text fields, text areas, user pickers, etc. See the CustomFieldType javadoc for details.	
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the custom field type module.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of the custom field type module.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this custom field type plugin module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
resource type="velocity"		Velocity templates that implement the custom field views.

Example

Here is the custom field JIRA defines for selecting users (taken from `system-customfieldtypes-plugin.xml`):

```
<customfield-type key="userpicker" name="User Picker"
class="com.atlassian.jira.issue.customfields.impl.UserCFType">
   <description>
      Choose a user from the user base via a popup picker window.
   </description>

   <!-- this template is used on the view issue page -->
   <resource type="velocity" name="view"
   location="templates/plugins/fields/view-user.vm" />
   <!-- this template is used on the create/edit issue pages -->
   <resource type="velocity" name="edit"
   location="templates/plugins/fields/edit-userpicker.vm" />
   <!-- this template is used when viewing an issue as XML -->
   <resource type="velocity" name="xml"
   location="templates/plugins/fields/xml-user.vm" />
</customfield-type>
```

Custom Field Searcher Configuration

The root element for the custom field searcher plugin module is `customfield-searcher`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class	✓	The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the custom field searcher. Classes must implement `com.atlassian.jira.issue.customfields.CustomFieldSearcher`, but there are several concrete implementations that can handle searching for JIRA's built-in fields. See the CustomFieldSearcher javadoc for more details.	
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the custom field searcher module.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of the custom field searcher module.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this custom field searcher plugin module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
resource type="velocity"		Velocity templates that implement the custom field searcher views.
valid-customfield-type	✓	Defines the custom field types this searcher can apply to. The `package` and `key` attributes together specify the module-complete key under which the custom field is registered; if the searcher is defined in the same `atlassian-plugin.xml` as the type (which is the usual case), then `package` should be the same as the `key` attribute on <atlassian-plugin>.

Example

Here is the custom field searcher JIRA defines for searching users (also taken from `system-customfieldtypes-plugin.xml`):

```
<customfield-searcher key="userpickersearcher" name="User Picker Searcher"
class="com.atlassian.jira.issue.customfields.searchers.UserPickerSearcher">
   <description>
      Allow to search for a user using a userpicker.
   </description>

   <!-- this template is used on the issue navigator search form -->
   <resource type="velocity" name="search"
   location="templates/plugins/fields/search-userpicker.vm" />
   <!-- this element defines the valid custom field types for this searcher -->
   <valid-customfield-type
   package="com.atlassian.jira.plugin.system.customfieldtypes" key="userpicker" />
</customfield-searcher>
```

Notes

Types and searchers can be combined in different ways to produce new custom fields, for example a "user" custom field could take a simple text searcher (to enter the username as text) or a more complex "user picker searcher" (where the user is picked from a popup window).

For more details, see the How to create a new Custom Field Type.

To learn more about the custom field Velocity templates, see Custom field Velocity context unwrapped

Custom field Velocity context unwrapped

Below is a list of available objects in the Velocity context for custom fields.

Object	Description	edit	view	col-view
customField	`com.atlassian.jira.issue.fields.CustomField` object. Information on the current field.	✔	✔	✔
issue	`com.atlassian.jira.issue.Issue` object. Pretty much everything about the issue.	✔	✔	✔
fieldLayoutItem	`com.atlassian.jira.issue.fields.layout.field.FieldLayoutItem`. Is field required? hidden?	✔	✘	✘
action	Calling action.	✔	✘	✘
displayParameters	Custom parameters to the template, such as whether to display headers or not	✔	✘	✘
value	String value of the custom field. Thus this is a String for Date and other single valued fields, List of Strings for Multi selects and CustomFieldParams full of Strings for Cascading selects	✔	✔	✔
customFieldParams	This is where the value is pulled from, for convenience	✔	✔	✔
config	`com.atlassian.jira.issue.customfields.config.CustomFieldConfig` object.	✔	✘	✘
configs	The various configuration items for that context. This include things like, default values, select list options and other configurable options	✔	✘	✘
i18n	`com.atlassian.jira.web.bean.I18nBean` for your internationalisation needs	✔	✔	✔
descriptor	The module descriptor of the current field	✔	✔	✔
textutils	`com.opensymphony.util.TextUtils` for text manipulation needs	✔	✔	✔
outlookdate	`com.atlassian.jira.web.util.OutlookDate` for formatting dates, JIRA style	✔	✔	✔
authcontext	`com.atlassian.jira.security.JiraAuthenticationContext` for authentication information	✔	✔	✔
dateutils	`com.atlassian.core.util.DateUtils` more date functions	✔	✔	✔
req	`HttpServletRequest` object.	✔	✔	✔
baseurl	The `getContextPath` of the req object	✔	✔	✔
constantsManager	The `com.atlassian.jira.config.ConstantsManager` object for managing "constants" (issue types, resolutions etc.)	✔	✔	✔

projectManager	`com.atlassian.jira.project.ProjectManager`	✔	✔	✔
applicationProperties	`com.atlassian.jira.config.properties.ApplicationProperties`	✔	✔	✔
jirautils	`com.atlassian.jira.util.JiraUtils` a random set of methods. has isPublic method	✔	✔	✔
jirakeyutils	`com.atlassian.jira.util.JiraKeyUtils` an object used for parsing keys	✔	✔	✔
buildutils	`com.atlassian.jira.util.BuildUtils` has information on build numbers, editions etc.	✔	✔	✔
velocityhelper	`com.atlassian.jira.util.JiraVelocityHelper` random set of utility methods	✔	✔	✔
userutils	`com.atlassian.core.user.UserUtils` untility for getting users	✔	✔	✔

+ Other velocity parameters from the custom field type

How to add searching to a Custom Field?

Custom fields need a **custom field searcher** before you can search them in the Issue Navigator.

If a custom field type is a going to behave somewhat like an existing type, then you can reuse an existing searcher. For example, if you're creating a custom field type that's like a multi select list and want to reuse the default multi-select searcher, you could add the block below to your atlassian-plugin.xml (taken from `system-customfieldtypes-plugin.xml`)

```
<customfield-searcher key="multiselectsearcher" name="Multi Select Searcher"
    i18n-name-key="admin.customfield.searcher.multiselectsearcher.name"
    class="com.atlassian.jira.issue.customfields.searchers.MultiSelectSearcher">
    <description key="admin.customfield.searcher.multiselectsearcher.desc">Search for multiple
values using a single select list.</description>

    <resource type="velocity" name="search"
location="templates/plugins/fields/edit-searcher/search-multiselect.vm"/>
    <resource type="velocity" name="view"
location="templates/plugins/fields/view-searcher/view-searcher-multioption.vm"/>
    <resource type="velocity" name="label"
location="templates/plugins/fields/view-searcher/label-searcher-basictext.vm"/>
    <valid-customfield-type package="YOUR CUSTOM PACKAGE" key="YOUR CUSTOM FIELD KEY"/>
</customfield-searcher>
```

which will enable searching for any text based, multi-select custom field type. When creating the custom field, you will now be able to select the multi-select searcher and your custom field should then be displayed in the Issue Navigator.

Note that "YOUR CUSTOM PACKAGE" refers to the package (ie. the module key) of the custom field that the searcher applies to.

Downloadable Plugin Resources

JIRA plugins may define downloadable resources. If your plugin requires JIRA to serve additional static files such as images, Javascript or CSS, you will need to use downloadable plugin resources to make them available.

> This is only available as of JIRA 3.5 and above.

Purpose of a Resource

A 'resource' is a non-Java file that a plugin may need in order to operate. Examples of possible resources might be:

- A Velocity file used to generate HTML for a macro or layout plugin module in Confluence.
- A CSS file required by a theme layout plugin module.
- An image referenced from within a layout plugin module.
- A macro help file.
- A localisation property file.

Resource definitions can be either a part of the plugin, or part of a particular plugin module.

Example of a Resource Definition

Here is a sample resource definition:

Contents of the Resource Definition

A resource has a name, a type and a location. The resource definition maps an arbitrary resource name to the location of that resource in the server's classpath.

Element	Attribute	Description
<resource>		This block defines the resource. For example: `<resource type="velocity" name="template" location="com/example/plugin/template.vm"/>`
<resource>	name	The name of the resource defines how the plugin module can locate a particular resource. Must be specified if 'namePattern' is not. If your location parameter points to a directory rather than a single resource, you should specify the name with a trailing '/'. For example: `<resource type="download" name="myimages/" location="com/example/plugin/myimages"/>` Note that for css/javascript resources, they must have the appropriate file extension in the name i.e. `.css`, `.js`
<resource>	namePattern	The pattern to use when loading a directory resource.
<resource>	type	The type of a resource tells the module how that resource can be used. The values allowed are different for each application. A module can look for resources of a certain type or name. For example, a `layout` plugin requires that its help file is a file of type `velocity` and name `help`. Refer to the examples of resource types below.
<resource>	location	The location of a resource tells the plugin where the resource can be found in the jar file. (Resources are loaded by Java's classpath resource loader.) • The full path to the file (without a leading slash) is required. • Must end in a '/' when using the 'namePattern' attribute to load multiple resources in a directory.
<property>	key/value	Resources may contain arbitrary key/value pairs. For example: `<property key="content-type" value="text/css"/>`
<param>	name/value	Resources may contain arbitrary name/value pairs. For example: `<param name="content-type" value="image/gif"/>`. Refer to the list of values for the param element below

Example of Resource Type: Downloadable Plugin Resources

The simplest kind of resource, supported with all plugin module types, is of type `download`, which makes a resource available for download from the application at a particular URL.

Example of Resource Type: Stylesheet referring to Images

Stylesheets for your plugin may often refer to images also in your plugin. In which case you would have to make both the stylesheet and image(s) downloadable.

Note: If you have multiple stylesheets and javascript resources defined, you should put the resource defintions in a Web Resource Module.

To refer to your plugin images in a stylesheet, use a relative path based on the resource name defined for the image (which is 'my-images' in this case).

my-style.css

To reference images already available in an application, you will need to go up three parent directories like so:

Values for Param Element

These are the common name/value pairs supported by the `<param>` element.

Name	Value (Example)	Description
content-type	image/gif	Specify a MIME content type.
media	print	Declare the media type for CSS resources. This is supported by Web Resource plugin modules. For example, requesting this resource will insert a `<link>` in the HTML header, with a media value of 'print':

ieonly	true	Specify that the resource should be wrapped in an Internet Explorer conditional comment. This is supported by Web Resource plugin modules. For example, the web resource declaration below says that the resource should be wrapped in an Internet Explorer conditional comment, which means it will only be used by Internet Explorer. This is useful for IE-specific styling to work around browser bugs. The HTML output when this resource is included will be something like this: The `ieonly` parameter also works for JavaScript resources.
title	(Your title)	The value given here will form the title attribute of the CSS `<link>` tag.

Gadget Plugin Module

> The Gadget plugin module is available only for OSGi-based plugins in JIRA 4.0 and later.

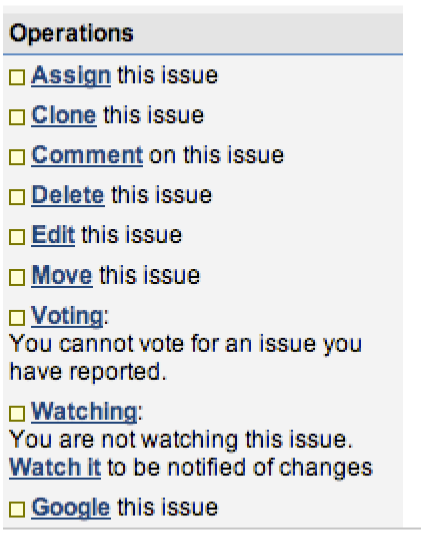
Atlassian gadgets are the new way to add portlets to the Dashboard from JIRA version 4 onwards. The gadget module type can also be included in other Atlassian products.

See the Atlassian Gadgets documentation for details.

Issue Operations Plugin Module

The Issue Operations plugin module allows you to add new operations to the 'View Issue' screen.

> Issue Operation plugin modules are available in JIRA 3.4 through to 4.0. They will be unavailable from 4.1 onwards — please use Web Items instead.



You can add new operations with a plugin, linking to information about a single issue (most likely pulled from an external source).

Simple Example

Here is an example descriptor that adds a link to Google a given issue's summary:

```
<!--
The module class should implement
com.atlassian.jira.plugin.issueoperation.PluggableIssueOperation
-->
<issue-operation key="google-summary" name="Google this issue"
class="com.atlassian.jira.plugin.issueoperation.DefaultPluggableIssueOperation">
<resource type="velocity" name="view">
&lt;img src="$req.contextPath/images/icons/bullet_creme.gif" height=8 width=8 border=0
align=absmiddle&gt;
&lt;b&gt;&lt;a
href="http://www.google.com/search?q=${issue.summary}"&gt;Google&lt;/a&gt;&lt;/b&gt; issue summary
</resource>
<!-- the relative order of operations -->
<order>10</order>
</issue-operation>
```

Issue operations are very useful as a 'hook' to link to your other plugin components - such as Webwork actions, project tab panels, reports etc.

Notes

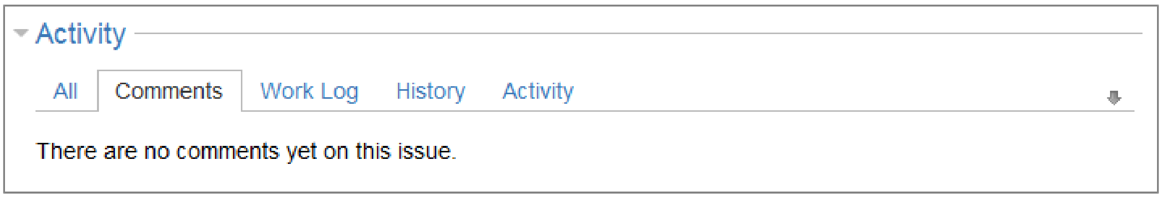
- All issue operation classes implement `PluggableIssueOperation`.
- The `showOperation(Issue issue)` method allows you to turn show or hide operations for certain users, permissions etc.
- `DefaultPluggableIssueOperation` is a useful base that should work for most simple HTML operations, for instance where only a changed .vm template is required. See for example the Canned Response issue operation plugin
- The view velocity resource can point to files just as in other plugins e.g.

```
<resource type="velocity" name="view" location="templates/more-operations.vm"/>
```

- All pluggable issue operations occur after system issue operations (i.e. order is among all pluggable operations, not all operations)

Issue Tab Panel Plugin Module

The Issue Tab Panel plugin module allows you to add new tab panels to the View Issue screen.



You can add a new tab with a plugin, displaying information about a single issue (most likely pulled from an external source). This is how the Subversion and Perforce integration works.

Here is an example descriptor (from the Subversion plugin - source available):

```
<!--
The module class should implement
com.atlassian.jira.plugin.issuetabpanel.IssueTabPanel
-->
    <issue-tabpanel key="subversion-commits-tabpanel" name="Subversion Changes Tab Panel"

class="com.atlassian.jira.plugin.ext.subversion.issuetabpanels.changes.SubversionRevisionsTabPanel">
<resource type="i18n" name="i18n"
location="templates.plugins.subversion.issuetabpanels.subversion_jira_plugin"/>
        <description>Show Subversion commits related to an issue in an issue tab
panel.</description>
        <label>Subversion Commits</label>
        <resource type="velocity" name="view"
location="templates/plugins/subversion/issuetabpanels/subversion-commits-view.vm"/>
    </issue-tabpanel>
```

JQL Function Plugin Module

The introduction of **advanced searching (JQL)** significantly enhances JIRA's searching functionality. One of the extension points that JQL provides to developers are JQL functions. Functions provide a way for values within a JQL query to be calculated at runtime. They are simple to write and can be surprisingly powerful. For example, consider the `issueKey` clause in JQL. It matches an issue with a particular issue key. This in itself is not very useful, but when combined with a function that returns all of a user's watched issues (`watchedIssues`), it provides a way to find all the issues that the current user is watching (`issuekey in watchedIssues()`).

JQL functions can only **provide values to a query**; most importantly, they **cannot be used to process the results**. For example, it is not possible to write a JQL function that will calculate the total time remaining from all issues returned from a search. A consequence of this is that functions can only be used with JQL clauses that already exist. The only way implement new JQL clauses is to implement a new searchable custom field. While this gives more control to the plugin developer, it is much more complicated.

JQL functions can take **arguments**. These arguments must take the form of simple string values. For example, `fixVersion in releasedVersions('JIRA')` contains a function call to `releasedVersions` to find all the released versions in the `JIRA` project. Making the arguments simple strings means that JQL lists and other JQL functions cannot be used as arguments. For example, it is not possible to do something like `myFuncton(currentUser())`.

A JQL function is an implementation of the `JqlFunction` interface that is registered in JIRA as a `jql-function` plugin. The registered `JqlFunction` will only be instantiated once per `jql-function` plugin. All queries that use the function will share the single instance. Consequently, a function can be called by multiple threads at the same time and as such must be thread-safe.

> **Try the introductory tutorial first**
> If you like, you can start with our introductory tutorial to JQL function plugins and then return to this guide for a more detailed example.

In the following guide we will be stepping through the implementation of a new JQL function called `roleMembers`. This function returns the users that are members of a particular JIRA project role. The first argument is the name of the role whose members we are trying to find. It is compulsory. Any other arguments name the projects whose roles should be checked. When no project is specified, all projects that the searcher can see are queried. For example, a call to `roleMembers(trole, tproj)` will find all the users in the role `trole` for the project `tproj`. On the other hand, a call to `roleMembers('testrole')` returns all the users in the role `testrole` across all projects that the searcher can see.

The function has a number of limitations that need to be addressed before it can be put into production. These limitations will be noted as we progress through implementing the function below. The plugin is available here if you want to follow along. The function is implemented in the `com.atlassian.example.jira.jqlfunc.RoleFunction` class.

On this page:

- JqlFunction.init Method
- JqlFunction.getFunctionName Method
- JqlFunction.getMinimumNumberOfExpectedArguments Method
- JqlFunction.isList Method
- JqlFunction.getDataType Method
- JqlFunction.validate Method
- JqlFunction.getValues Method
- Function sanitisation (Optional)
- The plugin module descriptor
- Important Points

JqlFunction.init Method

The `JqlFunction.init` method is called by JIRA to tell the `JqlFunction` about its associated `JqlFunctionModuleDescriptor`. This object represents JIRA's view of the `JqlFunction` and can be used to find plugin resources. The `init` method is only called once and is guaranteed to be called before the function is actually used by JIRA. In our example we simply store the `JqlFunctionModuleDescriptor` in a variable so that we can use it later to access our internationalised messages.

```
private volatile JqlFunctionModuleDescriptor descriptor;
    ...
    public void init(final JqlFunctionModuleDescriptor descriptor)
    {
        this.descriptor = descriptor;
    }
```

The observant may have noted that we store the `JqlFunctionModuleDescriptor` in a volatile variable. We do this to ensure that our JQL function is thread-safe. While the `init` method will only be called once, we need to make the variable volatile to guarantee visibility to the many threads that will need to read it.

JqlFunction.getFunctionName Method

The `JqlFunction.getFunctionName` method returns the name that can be used in JQL to invoke the function. In this case we will simply return the constant string `roleMembers`.

```
public String getFunctionName()
    {
        return "roleMembers";
    }
```

JIRA must get the same name each time it calls `getFunctionName`. Importantly, this means that the function name cannot be translated. The function name does not have to be in English, however it must be in the same language for every user in JIRA irrespective of their language settings.

The function name should also be unique across all instances of JIRA where it is expected to run. Having two JQL functions of the same name in JIRA will produce confusing results. JIRA will only register the *first* function for use in JIRA and will simply ignore any others of the same name. The plugin that JIRA determines to be *first* is somewhat arbitrary and may result in different JQL functions of the same name being registered on each start up. The moral of the story: try very hard to make your function names unique.

JqlFunction.getMinimumNumberOfExpectedArguments Method

The `JqlFunction.getMinimumNumberOfExpectedArguments` basically returns the smallest number of arguments that the function may accept. In this case, our function can take 1 or more arguments so we will be returning 1.

```
public int getMinimumNumberOfExpectedArguments()
    {
        return 1;
    }
```

The value returned from this method must be consistent across method invocations.

JqlFunction.isList Method

The JqlFunction.isList should return `true` if the function returns a list, or `false` if it returns a scalar. The main difference is that a list type can be used with the `IN` and `NOT IN` operators while a scalar type can be used with =, `!=`, <, >, <=, >=, `IS` and `IS NOT`. For our function it makes sense to say `assignee IN roleMembers(Administrators)` so we will be returning `true`. Here is the code:

```
public boolean isList()
    {
        return true;
    }
```

The value returned from this method must be constant. It cannot change based on the parameters or the function's result. The function must either always return a list or must always return a scalar.

The easiest way to work out whether the function should return a list or not is to simply consider where it is going to be used. If the function makes sense with the `IN` or `NOT IN` operators, then function returns a list and needs to return `true` for this method. This will normally be the case when the function logically returns more than one value (e.g. `releasedVersons()`, `membersOf()`) . On the other hand if the function should be used with =, `!=`, <, >, <=, >=, `IS` and `IS NOT` then it should return `false`. This will normally be the case when a function logically returns one value (e.g. `now()`, `currentUser()`).

JqlFunction.getDataType Method

The `JqlFunction.getDataType` method is called to determine the type of data the function returns. The value tells JIRA which JQL clauses the function can be expected to work with. For example, returning JiraDataTypes.VERSION indicates that the function should only be used with clauses that work with JIRA versions. You may return `JiraDataTypes.ALL` if you wish the function to be available across all JQL conditions. Here we are returning JIRA users (via their names) so we will return `JiraDataTypes.USER`.

```
public JiraDataType getDataType()
    {
        return JiraDataTypes.USER;
    }
```

Again the value returned must be consistent across all invocations of this method.

JqlFunction.validate Method

The `JqlFunction.validate` method is called by JIRA when the function needs to be validated. The job of this method is to check the arguments to the function to ensure that it is being used correctly. Here is the interface:

```
@NotNull MessageSet validate(User searcher, @NotNull FunctionOperand operand, @NotNull
TerminalClause terminalClause);
```

The most important argument is the `FunctionOperand`. It contains all of the functions arguments as given by the `FunctionOperand.getArgs` method. All JQL function arguments come in as `Strings` and it is up to the function to interpret them correctly. The `searcher` is the user that the function should be validated for, that is, the user that any security checks should be performed for. The `TerminalClause` is JIRA's representation of the JQL condition we are validating for. For functions it represents a JQL condition of the form `name operator function(arg1, arg2, ..., argn)`. The name, operator and function can be returned by calling `TerminalClause.getName`, `TerminalClause.getOperator` and `TerminalClause.getOperand` respectively. The value returned from `getOperand()` will be the `FunctionOperand` that is passed to this method. This method is only called when the passed arguments are relevant to the JQL function, that is, the validation does not need to check if the `FunctionOperand` has the correct function name.

The `validate` method must always return a `MessageSet` as its result. A `null` return is not allowed. A `MessageSet` is an object that contains all of the errors and warnings that occur during validation. All messages in the `MessageSet` need to be translated with respect to the passed searching user. An empty `MessageSet` indicates that no errors have occurred. A `MessageSet` with errors indicates that the JQL is invalid and should not be allowed to run. The returned messages will be displayed to the user so that any problems may be rectified. A `MessageSet` with warnings indicates that the JQL may have problems but that it can still be run. Any warning messages will be displayed above the results.

Functions need to respect JIRA security. A function should not return references to JIRA objects (e.g. projects, issues) that they are not allowed to see. Further, a function should not leak information about JIRA objects that the searcher does not have permission to use. For example, a function should not differentiate between a project not existing and a project that the user has no permission to see. A function that behaves badly will not cause JQL to expose issues that the searcher is not allowed to see (since JQL does permission checks when it runs the filter), though it does open up an attack vector for information disclosure.

Only one instance of each JQL function is created. This means that your function can (and probably will) be called by two threads at the same time. To accommodate this, your function must be thread-safe or unexpected behaviour can result.

In the validation of the `roleMembers` the implementation needs to:

1. Check that we have at least one argument.
2. Check that the passed project role is valid.
3. Check that any passed projects are valid.

The implementation is listed here:

```
public MessageSet validate(final User searcher, final FunctionOperand operand, final
TerminalClause terminalClause)
    {
        MessageSet messages = new MessageSetImpl();
        final List<String> arguments = operand.getArgs();

        //Make sure we have the correct number of arguments.
        if (arguments.isEmpty())
        {

messages.addErrorMessage(descriptor.getI18nBean().getText("rolefunc.bad.num.arguments",
operand.getName()));
            return messages;
        }

        //Make sure the role is valid.
        final String role = arguments.get(0);
        validateRole(role, messages);

        //Make sure the project arguments are valid if provided.
        if (arguments.size() > 1)
        {
            for (String project : arguments.subList(1, arguments.size()))
            {
                validateProject(searcher, project, messages);
            }
        }

        return messages;
    }
```

The first thing the validation checks is that the function is supplied at least one argument (lines 7-11). If not, then we add an error message to the `MessageSet` and return immediately as the role is compulsory. Note that we use the module descriptor that we stored away in the `JqlFunction.init` method to get access to the plugin's `I18nHelper` to help with the translations.

The next call ensures that the passed role name is actually valid (lines 14-15). It does this by calling the private `validateRole` method. The validateRole method is not currently production ready for two main reasons. Firstly, the lookup is not very forgiving as the user must enter in a role name exactly, including case, as it appears in JIRA. In a production version of this function, the lookup should be made case-insensitive. It may also be useful to try looking up the role by ID if the name lookup fails. This is is useful for queries that are generated programmatically.

The second problem is security. The implementation currently allows the searcher to enter in any valid role. There may be a case for restricting access to roles. It really depends on the usage, however, it is important to realise that by implementing this function we are giving users a way to find all the members of a particular role even when they do not have administrator access.

The next step in the validate is to check the correctness and applicability of any project arguments (lines 18-24). We do this by calling the internal validateProject method. This method checks that the project exists and that the searcher has permission to browse the project, that is, view issues in the project. The project lookup first tries to find the project by name, and then by project ID if that fails. This implementation would also need some tweaking before it could be used in production as the user must enter in the project name exactly as it appears in JIRA. We need to make the project name lookup case-insensitive. It would also be nice to try the project key if the name lookup fails. It may even be nicer to try the project key lookup first.

The implementation of this method must be thread-safe. The dependencies we use are thread-safe and are stored in final or volatile variables to ensure visibility. All method state is kept local to ensure that it is not visible to other threads.

Note that when the function is valid we actually return an empty MessageSet. A null MessageSet is never returned.

JqlFunction.getValues Method

The JqlFunction.getValues method is called by JIRA when it needs to execute the function so that it can perform a query.

```
@NotNull
    List<QueryLiteral> getValues(@NotNull QueryCreationContext queryCreationContext, @NotNull
FunctionOperand operand, @NotNull TerminalClause terminalClause);
```

The FunctionOperand and the TerminalClause are as described previously in the validate method. The new argument here is the QueryCreationContext. This object contains the variables that may be necessary when executing the function. The QueryCreationContext.getUser method returns the user that is running the search and as such should be used to perform any security checks that may be necessary. The QueryCreationContext.isSecurityOverriden method indicates whether or not this function should actually perform security checks. When it returns true, the function should assume that the searcher has permission to see everything in JIRA. When it returns false, the function should perform regular JIRA security checks and make sure it only returns things that the searcher has permission to see. This parameter is used by JIRA in certain administrative operations where finding all issues is important.

The JQL function returns a list of QueralLiteral. A QueryLiteral represents either a String, Long or EMPTY value. These three represent JQL's distinguishable types. The type of the QueryLiteral is determined at construction time and cannot be changed. Construct it with no value and it will represent EMPTY, construct it with a String and it represents a String, or construct it with a Long and it represents a Long.

Most JQL clauses will treat each type differently. For example, let's consider the affectsVersion clause. When passed a Long QueryLiteral, it will look for all issues with an Affects Version of the specified ID. This is useful when a function would need to identify a particular version exactly. Where possible we suggest that functions try to return IDs so that query results are unambiguous. When passed a String QueryLiteral, the affectsVersion clause will run one of two searches depending upon the value in the QueryLiteral:

1. If version(s) with the name given in the QueryLiteral exist, then return all issues with the specified Affects Version(s). This may return empty results.
2. If the value given in the QueryLiteral can be parsed into a version ID and that version exists, then return all issues that have an Affects Version of the parsed ID. This may return empty results.
3. Return empty results.

JQL functions may return String QueryLiterals, however, the result of the query will be dependent on the lookup procedure of the JQL clause it is used with. Finally, the EMPTY QueryLiteral will make the affectsVersion condition look for all issues that have no Affects Version set.

The function always returns a list of QueryLiterals. It is even valid for a scalar function (i.e. a function whose isList method returns false) to return multiple QueryLiteral objects. In such a situation it is the JQL clause the function is being used with that decides what this means. All of the core JIRA JQL clauses simply treat such a situation as an OR between each of the returned values. The function must return an empty list of QueryLiteratals (not an empty QueryLiteral) to indicate an error. Importantly, the function can never return a null list.

The JqlFunction.getValues method may be called with arguments that would not pass the JqlFunction.validate method. Under this situation it is important that the function not throw an error, as JQL is designed to try and run invalid queries where possible. The function should run if possible, or otherwise, return an empty list. The only thing the function can assume is that the FunctionOperand argument is meant to be executed by the function.

Only one instance of each JQL function is created. This means that your function can (and probably will) be called by two threads at the same time. To accommodate this, your function must be thread-safe or unexpected behaviour can result.

The JqlFunction.getValues method must execute quickly. Keep in mind, that your function will be executed each time the query is run. If your function takes 10 seconds to run, then the entire JQL query will take at least 10 seconds. Functions also need to perform well under concurrent load. Keep synchronization (locking) down to a minimum. The simplest way to do this is to keep all the functions' calculation state on the stack and out of member variables.

Let's implement this method for the roleMemebers function. In our implementation we will need to:

1. Check that at least one argument is passed.
2. Find the role passed in as an argument.
3. Lookup the projects we are going to query. This may come from the arguments, or may be all the projects that the user has permission to see.
4. Find all the users in the role for the projects we looked up.
5. Turn the users into `QueryLiteral` objects and return them.

This is implemented here:

```
public List<QueryLiteral> getValues(final QueryCreationContext queryCreationContext, final
FunctionOperand operand, final TerminalClause terminalClause)
    {
        final List<String> arguments = operand.getArgs();
        //Can't do anything when no argument is specified. This is an error so return empty list.
        if (arguments.isEmpty())
        {
            return Collections.emptyList();
        }

        final ProjectRole projectRole = lookupRole(arguments.get(0));
        //Role not in system, then do nothing.
        if (projectRole == null)
        {
            return Collections.emptyList();
        }

        final Collection<User> users;
        if (arguments.size() > 1)
        {
            //Projects are specified, then look at those projects.
            users = getUsersForProjects(queryCreationContext, projectRole, arguments.subList(1,
arguments.size()));
        }
        else
        {
            //No project specified, then look at all projects.
            users = getUsersForAllProjects(queryCreationContext, projectRole);
        }

        //Covert all the users to query literals.
        final List<QueryLiteral> literals = new ArrayList<QueryLiteral>(users.size());
        for (User user : users)
        {
            literals.add(new QueryLiteral(operand, user.getName()));
        }

        return literals;
    }
```

The first check is to ensure that the user has entered in the role name (lines 5-7). If they have not, then the function simply returns an empty list since it cannot continue.

The next check is that the role the user has specified actually exists (lines 10-15). If it does not then the function simply returns an empty list. It is important that the `JqlFunction.validate` and `JqlFunction.getValues` methods use the same logic when looking up the role to ensure consistency between the two methods. Because of this, the implementation suffers from the same issues with role lookup that were outlined in the section on validation. Namely, the lookup is not user friendly and may actually be a security hole.

Next we find the users in the role for the specified projects (lines 17-27). There are two situations to consider here. When the user has specified some projects, we need to limit the search to those projects. We do this in the `getUsersForProjects` method. The project lookup in this method simply ignores project arguments that do not match any current projects. It also ignores any projects that the searcher does not have permission to see, that is, unless the `QueryCreationContext` tells the function to ignore such query permission checks. On the other hand, if no projects are specified then we look for all projects that the passed user can see, or alternatively, all the projects in JIRA if the `QueryCreationContext` is configured to ignore security. This is implemented in the `getUsersForAllProjects` method. To keep things consistent with validation we look up projects using the project name and project ID. In production it would be better to provide a more user friendly lookup as outlined in the section on implementing the `JqlFunction.validate` method.

Next the implementation converts the users into their equivalent `QueryLiteral` representations so they can be returned (line 30-34). Since users are uniquely identified by the user name (bad JIRA) we will return one String `QueryLiteral` per user. Note that if the function finds no users then an empty list is returned and not `null`.

The implementation of this method must be thread-safe. The dependencies we use are thread-safe and are stored in `final` or `volatile` variables to ensure visibility. All method state is kept local to ensure that it is not visible to other threads.

Function sanitisation (Optional)

To make our function truly production ready, we have to also implement `ClauseSanitisingJqlFunction`. A saved JQL search (filter) can be shared with multiple users. While this functionality is very useful, it also allows information to be leaked. For example, let's say you have a filter that contains `assignee in roleMembers(Administrators, Proj)` and you share the filter with Janice who cannot see `Proj`. The search will not return any results, however, Janice will know that a project called `Proj` exists even though she does not have permission to see it. A JQL function that can expose sensitive information (that is, a function that does security checks) should also implement the optional `ClauseSanitisingJqlFunction` interface. The interface has one method:

```
@NotNull FunctionOperand sanitiseOperand(User searcher, @NotNull FunctionOperand operand);
```

This method takes a searcher and a `FunctionOperand` and returns an equivalent operand that hides any privileged information the passed searcher should not see. The usage of the `FunctionOperand` is outlined in the discussion of the `validate` method. The returned function is what the passed searcher will see when trying to load the filter.

It is important that the `FunctionOperand` that is returned from sanitisation is equivalent to the passed operand. If this is not the case, then it is possible for two people running the exact same filter to be actually running two different searches.

The `roleMembers` function should check that the passed user can see all the project arguments. If all the passed projects are visible, the we can simply return the `FunctionOperand` as passed. On the other hand, if some of the projects are not visible then the sanitiser should return a new `FunctionOperand` that has any names replaced with project IDs. This is not a perfect solution as we still leak the fact that a project exists that the searcher cannot see, however, we no longer leak the project name. The implementation does this:

```
public FunctionOperand sanitiseOperand(final User user, final FunctionOperand functionOperand)
    {
        final List<String> arguments = functionOperand.getArgs();

        //We only sanitise projects, so just return the original function if there are no
projects.
        if (arguments.size() <= 1)
        {
            return functionOperand;
        }

        boolean argChanged = false;
        final List<String> newArgs = new ArrayList<String>(arguments.size());
        newArgs.add(arguments.get(0));
        for (final String argument : arguments.subList(1, arguments.size()))
        {
            final Project project = findProject(argument);
            if (project != null && !permissionManager.hasPermission(Permissions.BROWSE, project,
user))
            {
                newArgs.add(project.getId().toString());
                argChanged = true;
            }
            else
            {
                newArgs.add(argument);
            }
        }

        if (argChanged)
        {
            return new FunctionOperand(functionOperand.getName(), newArgs);
        }
        else
        {
            return functionOperand;
        }
    }
```

The first check makes sure that the function has project arguments (lines 6-9). When the function has no project arguments it can return the input operand unchanged as there is nothing to sanitise. The function then loops across all the arguments and replaces projects that the user cannot see with their equilavent ID (lines 14-26). Finally, the method returns either a new equivalent `FunctionOperand` if any of the argument values have changed, or the original `FunctionOperand` if no arguments have changed (lines 28-35).

Another way to implement this sanitisation would be to simply remove the projects that the user is not able to see and return a new function. This implementation is broken as it could actually change what the query does if the last project was deleted from the function call. In this case, the function call would go from "finding all the users in a role in the specified projects" to "finding all the users in a role in all projects".

As already noted, the `roleMembers` function should probably perform some permissions checks on the project role argument. If such a check was implemented, then the sanitiser would probably have to change to reflect any logic here.

The plugin module descriptor

Once we have implemented the function we need to create a plugin descriptor that points JIRA at our function. The `roleMembers` function has the following XML descriptor:

```
<atlassian-plugin key="com.atlassian.example.jira.jqlfunc.rolefunc" name="JQL Role Members
Function" pluginsVersion="2">
    <plugin-info>
        <description>JQL Role Members Function</description>
        <version>1.0-SNAPSHOT</version>
        <application-version
            min="4.0"
            max="4.0" />
    </plugin-info>

    <jql-function key="role-members" i18n-name-key="rolefunc.name" name="Role Members Function"
            class="com.atlassian.example.jira.jqlfunc.RoleFunction">
        <resource type="i18n" name="i18n"
location="com.atlassian.example.jira.jqlfunc.RoleFunction" />
        <description key="rolefunc.description">JQL function to return the members of a particular
role</description>
    </jql-function>
</atlassian-plugin>
```

The module type for a JQL plugin is `jql-function`. There is no other JQL function specific configuration needed here. The rest of the descriptor is standard Atlassian plugin configuration and is documented elsewhere.

Now the plugin can be built and packaged into a plugin JAR. Once this plugin is installed in JIRA it will become available for use in JQL queries (e.g. `assignee in membersOf(Administrators)`). The function will even show up in the JQL autocomplete.

Important Points

- Your function will be executed when the query is run. Make sure your function runs quickly even under concurrent load.
- Only one instance of a function is created. This instance is shared by JQL queries that use the function. This means that a JQL function may be called concurrently by different threads. As a result, your JQL function must be thread-safe.
- Ensure that you take notice of the `QueryCreationContext.isSecurityOverriden` when running the function.
- JQL functions need to respect JIRA security. If a function does not respect JIRA security, then it becomes an attack vector for information disclosure.

RELATED TOPICS

Plugin Tutorial - Adding a JQL Function to JIRA

Keyboard Shortcut Plugin Module

Available:	JIRA 4.1 and later
Changed:	In JIRA 4.2 and later, the `keyboard-shortcut` element accepts an optional child element (`hidden`), which prevents the keyboard shortcut from appearing on the keyboard shortcuts dialog box. Existing keyboard shortcuts can also be overridden.

Purpose of this Module Type

A keyboard shortcut plugin module defines a keyboard shortcut within JIRA. A JIRA keyboard shortcut allows you to perform potentially any action in JIRA using one or more keyboard strokes - for example, going to the Dashboard, browsing a project, moving your cursor to a field on a JIRA form, or creating, editing or commenting on an issue.

Configuration

The root element for the keyboard shortcut plugin module is `keyboard-shortcut`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`.	N/A

i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module.	The plugin key.
hidden		When `hidden='true'`, the keyboard shortcut will not appear in the Keyboard Shortcuts dialog box. Despite not appearing in the dialog box, hidden keyboard shortcuts can still be accessed via they keystrokes. This attribute is only available in JIRA 4.2 and later.	false

Elements

Name	Required	Description
order	✓	A value that determines the order in which the shortcut appears on the Keyboard Shortcuts dialog box (with respect to other `keyboard-shortcut` plugin modules). This element is also used to override existing shortcuts displayed on the Keyboard Shortcuts dialog box (see below). For each `keyboard-shortcut` plugin module, we recommend using gaps in `order` values (for example, `10`, `20`, `30`, etc.) rather than consecutive values. This will allow you to 'insert' new keyboard shortcuts more easily into the keyboard shortcuts dialog box.
description	✓	A human-readable description of this keyboard shortcut module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
shortcut	✓	The sequence of keystrokes required to activate the keyboard shortcut's operation. These should be presented in the order that the keys are pressed on a keyboard. For example, `gb` represents a keyboard shortcut whose operation is activated after pressing 'g', followed by 'b' on the keyboard.
operation	✓	A jQuery selector that specifies the target of the keyboard shortcut. The target is typically a component of the current page that performs an action. The `operation` element is accompanied by a `type` attribute that specifies the type of keyboard shortcut operation. For more information on the available types, please refer to the JIRA API documentation.
context		The section of the Keyboard Shortcuts dialog box on which the shortcut appears. If this element contains `global` or is omitted, the keyboard shortcut appears in the 'Global Shortcuts' section of this dialog box. If this element contains `issueaction`, the keyboard shortcut appears in the 'Issue Actions' section of the dialog box. If this element contains `issuenavigation`, the keyboard shortcut appears in the 'Navigating Issues' section of the dialog box.

Overriding Existing Keyboard Shortcuts

This feature is only available in JIRA 4.2 and later.

You can override an existing keyboard shortcut defined either within JIRA itself or in another plugin.

To do this create a `keyboard-shortcut` plugin module with exactly the same `shortcut` element's keystroke sequence as that of the keyboard shortcut you want to override. Then, ensure that an `order` element is added, whose value *is greater than* that defined in the keyboard shortcut being overridden.

While the `order` element may affect the position of your overriding keyboard shortcut on the Keyboard Shortcuts dialog box, it will also prevent the overridden keyboard shortcut from:

- appearing in the dialog box and
- being accessed via the keyboard.

Internationalisation

It is possible to include an i18n resource in your `atlassian-plugin.xml` to translate keyboard shortcut descriptions (via their 'key' attributes) into multiple languages. For examples code on including i18n resources in your `atlassian-plugin.xml` file, please refer to Downloadable Plugin Resources.

Examples

These examples are taken from JIRA's pre-defined keyboard shortcuts for going to the Dashboard, commenting on an issue and moving to the next action item on an issue view.

```
...
    <keyboard-shortcut key="goto.dashboard"
i18n-name="admin.keyboard.shortcut.goto.dashboard.name"
                       name="Goto Dashboard">
        <order>10</order>
        <description key="admin.keyboard.shortcut.goto.dashboard.desc">Go to
Dashboard</description>
        <shortcut>gd</shortcut>
        <operation type="followLink">#home_link</operation>
    </keyboard-shortcut>
...

...
    <keyboard-shortcut key="comment.issue" i18n-name="admin.keyboard.shortcut.commentissue.name"
name="Comment Issue"
                       state='enabled'>
        <order>80</order>
        <description key="admin.keyboard.shortcut.commentissue.desc">Scrolls to comment input and
focuses it</description>
        <shortcut>m</shortcut>
        <operation type="click">#comment-issue</operation>
        <context>issueaction</context>
    </keyboard-shortcut>
...

...
    <keyboard-shortcut key="move.to.next.action.item"
i18n-name="admin.keyboard.shortcut.movetonextactionitem.name" name="Move to next action item"
                       state='enabled'>
        <order>110</order>
        <description key="admin.keyboard.shortcut.movetonextactionitem.desc">Moves to the next
action item on view issue page</description>
        <shortcut>n</shortcut>
        <operation type="moveToNextItem">.issue-data-block:visible</operation>
        <context>issueaction</context>
    </keyboard-shortcut>
...
```

Module Type Plugin Module

The Module Type plugin module described below is available only for OSGi-based plugins in JIRA 4.0 and above.

Purpose of this Module Type

Module Type plugin modules allow you to dynamically add new plugin module types to the plugin framework, generally building on other plugin modules. For example, a plugin developer could create a `<dictionary>` plugin module that is used to feed a dictionary service used by still other plugins.

Configuration

The root element for the Module Type plugin module is **`module-type`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The ModuleDescriptor class to instantiate when a new plugin module of this type is found. See the plugin framework guide to creating plugin module instances.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	

key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the module type. This value will be used as the XML element name to match.	N/A
name		The human-readable name of the plugin module.	
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false

Elements

Name	Required	Description	Default
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body.	

Example

Here is an example `atlassian-plugin.xml` file containing a plugin module type:

Our dictionary module descriptor allows plugins to provide dictionaries that get definitions of technical terms and phrases in various languages. We have a `Dictionary` interface that looks like this:

The Java code for `DictionaryModuleDescriptor` could look like this:

This will add the new module type 'dictionary' to the plugin framework, allowing other plugins to use the new module type. Here is a plugin that uses the new 'dictionary' module type:

Accessing modules of your dynamic module type can be done using `com.atlassian.plugin.PluginAccessor`.

Note that it is not advisable to cache the results of calls to `com.atlassian.plugin.PluginAccessor`'s methods, since the return values can change at any time as a result of plugins being installed, uninstalled, enabled, or disabled.

Notes

Some information to be aware of when developing or configuring a Module Type plugin module:

- Not all dynamic module types will need to use the `class` attribute on the modules that implement them. For example, if the above dictionary example just used a resource file to translate terms, and not an interface that plugins had to implement, plugins using the dictionary module type might look like this:
- The plugin that defines a new module type cannot use the module type in the Plugin Framework 2.1, but can in 2.2 or later.
- If you want to have control over the construction of the ModuleDescriptor, you can skip the 'module-type' module and make public a component registered against the ModuleDescriptorFactory interface:

  Ensure your `ModuleDescriptorFactory` implements `com.atlassian.plugin.osgi.external.ListableModuleDescriptorFactory`.
- By specifying the `application` attribute in your module type element, you can ensure that a plugin only uses that module type when it is running in a specific application. For example, with the following snippet, the dictionary module type is only used when the plugin is loaded in JIRA:

  The supported values for `application` are the **Product Keys** listed in the Atlassian Plugin SDK documentation.

Portlet Plugin Module

Purpose of this Module Type

A portlet plugin module defines a portlet that users can add to their Dashboards.

> **In JIRA 4, portlets have been superseded by gadgets.**
> For details, please see Gadgets and JIRA Portlets.

Configuration

The root element for the portlet plugin module is `portlet`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class	✔	The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the component. Portlet implementation classes are required to implement the `com.atlassian.jira.portlet.Portlet` interface, but we strongly recommend that you extend the convenience class `com.atlassian.jira.portlet.PortletImpl`.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the component.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of the component.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this portlet module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
label	✔	The user-visible name of this portlet. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
thumbnail		An optional thumbnail image used to preview the portlet for users.
permission		Permission required to add this portlet to a dashboard. Value must be one of the fields of `com.atlassian.jira.security.Permissions`.
objectdescriptor		Allows configuration of this portlet with an object descriptor class (see this page for more details). We recommend using a `key` attribute containing the localized name of your plugin.
lazy		Whether to load this portlet lazily.

Example

```
<portlet key="assignedtome" name="Assigned Issues"
    class="com.atlassian.jira.portal.portlets.AssignedToMePortlet">
    <description key="portlet.assignedtome.description">i18n description</description>
    <!-- this template produces the eventual HTML of the portlet -->
    <resource type="velocity" name="view"
location="templates/plugins/jira/portlets/assignedtome.vm" />
    <label key="portlet.assignedtome.name" />
    <!-- an optional thumbmail image used to preview the portlet for users -->
    <thumbnail>portlets/dashboard/thumbnails/assigned.gif</thumbnail>
    <!--
        the permissions required to add this portlet
        (optional - not often required)
     -->
    <permission>assignable</permission>
    <objectdescriptor key="portlet.assignedtome.display.name" />
    <!-- same as the properties of the report plugin module -->
    <properties>
        <property>
            <key>numofentries</key>
            <name>portlet.assignedtome.field.numofentries.name</name>
            <description>portlet.assignedtome.field.numofentries.description</description>
            <type>long</type>
            <default>10</default>
        </property>
    </properties>
</portlet>
```

Notes

Also see How to create a JIRA Portlet.

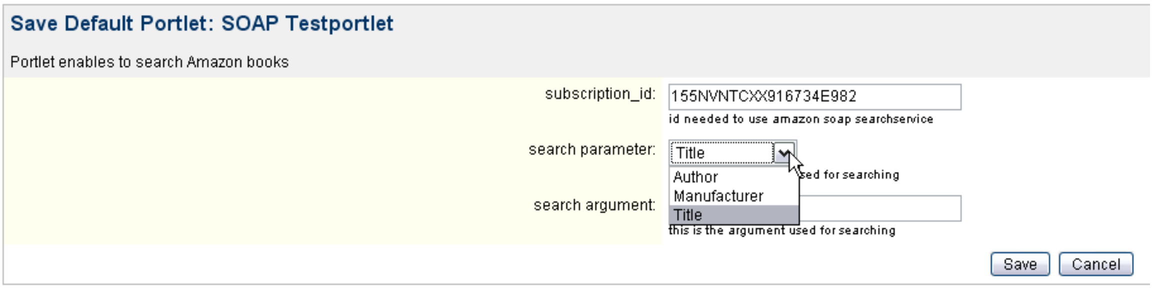
Quick start guide for creating a portlet plugin

In JIRA 4.0, portlets have been superceded by gadgets.
For details, please see Gadget Development.

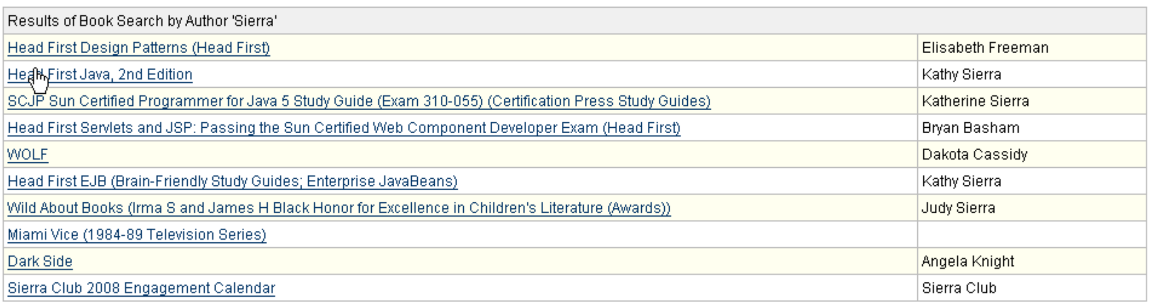
Goal

This page is intented to get you up and running with writing your own JIRA portlet within no time. It actually is a combination of several examples included in the plugin development kit which were broken.   The portlet which is explained below lets you configure 3 parameters and will result in table of books that match the searchcriterium:

1. subscriptionId (Needed to use an Amazon webservice)
2. searchParameter (What book property will we be looking for ? E.g. Title, Author, ...)
3. searchArgument (The argument which will be searched for. E.g. "Java" or "Ruby")



Screenshot 1: Configuration of portlet



Results of Book Search by Author 'Sierra'	
Head First Design Patterns (Head First)	Elisabeth Freeman
Head First Java, 2nd Edition	Kathy Sierra
SCJP Sun Certified Programmer for Java 5 Study Guide (Exam 310-055) (Certification Press Study Guides)	Katherine Sierra
Head First Servlets and JSP: Passing the Sun Certified Web Component Developer Exam (Head First)	Bryan Basham
WOLF	Dakota Cassidy
Head First EJB (Brain-Friendly Study Guides; Enterprise JavaBeans)	Kathy Sierra
Wild About Books (Irma S and James H Black Honor for Excellence in Children's Literature (Awards))	Judy Sierra
Miami Vice (1984-89 Television Series)	
Dark Side	Angela Knight
Sierra Club 2008 Engagement Calendar	Sierra Club

Screenshot 2: result of search (parameter = 'Author' & argument = 'Sierra')

Results of Book Search by Title 'java'	
Head First Java, 2nd Edition	Kathy Sierra
SCJP Sun Certified Programmer for Java 5 Study Guide (Exam 310-055) (Certification Press Study Guides)	Katherine Sierra
Regular Expression Pocket Reference: Regular Expressions for Perl, Ruby, PHP, Python, C, Java and .NET (Pocket Reference (O'Reilly))	Tony Stubblebine
Java Persistence with Hibernate	Christian Bauer
Java Concurrency in Practice	Brian Goetz
Java How to Program (7th Edition) (How to Program)	Harvey & Paul) Deitel & Associates Inc.
Core Java(TM), Volume I--Fundamentals (8th Edition)	Cay S. Horstmann
Groovy Recipes: Greasing the Wheels of Java (Pragmatic Programmers)	Scott Davis
Murach's Java Servlets and JSP, 2nd Edition	Joel Murach
Java In A Nutshell, 5th Edition	David Flanagan

Screenshot 3: result of search (parameter = 'Title' & argument = 'Java')

Prequisites

My installed software:

1. JDK 1.6.0_03
2. Eclipse 3.3.0
3. Maven 2.0.7
4. Jira enterprise standalone edition 3.12.2

Configuration steps

You will need to make some changes to your $maven_home/conf/settings.xml.

```
<profiles>
    <profile>
      <id>Ciber</id>
      <activation>
        <activeByDefault>true</activeByDefault>
      </activation>

      <repositories>
        ...
        <!-- JIRA -->
        <repository>
          <id>atlassian-public</id>
          <url>https://maven.atlassian.com/repository/public</url>
          <snapshots>
            <enabled>true</enabled>
          </snapshots>
          <releases>
            <enabled>true</enabled>
          </releases>
        </repository>
        <repository>
          <id>atlassian-contrib</id>
          <url>https://maven.atlassian.com/contrib</url>
          <snapshots>
            <enabled>false</enabled>
          </snapshots>
          <releases>
            <enabled>true</enabled>
          </releases>
        </repository>
        <repository>
          <id>atlassian-m1-repository</id>
          <url>https://maven.atlassian.com/maven1</url>
          <layout>legacy</layout>
        </repository>
      </repositories>

      <pluginRepositories>
        ...
        <!-- JIRA -->
        <pluginRepository>
          <id>atlassian-public</id>
          <url>https://maven.atlassian.com/repository/public</url>
          <snapshots>
            <enabled>true</enabled>
          </snapshots>
          <releases>
            <enabled>true</enabled>
          </releases>
        </pluginRepository>
        <pluginRepository>
          <id>atlassian-contrib</id>
          <url>https://maven.atlassian.com/contrib</url>
          <snapshots>
            <enabled>false</enabled>
          </snapshots>
          <releases>
            <enabled>true</enabled>
          </releases>
       </pluginRepository>
      </pluginRepositories>

      <properties>
        <downloadSources>false</downloadSources>
        <downloadJavadocs>false</downloadJavadocs>
        <atlassian.pdk.server.url>http://localhost:8080</atlassian.pdk.server.url>
        <atlassian.pdk.server.username>********</atlassian.pdk.server.username>
        <atlassian.pdk.server.password>********</atlassian.pdk.server.password>
      </properties>
    </profile>
  </profiles>
```

See also "how to build an atlassian plugin".

Next we will create a new plugin project based on a plugin archetype. In a DOS-box, run following command:

```
mvn org.apache.maven.plugins:maven-archetype-plugin:1.0-alpha-7:create \
  -DarchetypeGroupId=com.atlassian.maven.archetypes \
  -DarchetypeArtifactId=jira-plugin-archetype \
  -DarchetypeVersion=10 \
  -DremoteRepositories=https://maven.atlassian.com/repository/public/ \
  -DgroupId=$MY_PACKAGE$ -DartifactId=$MY_PLUGIN$
```

and replace $MY_PACKAGE$ and MY_PLUGIN according to your project. Make sure you remove the backslashes "\" so the complete command is one 1 line before you execute it.

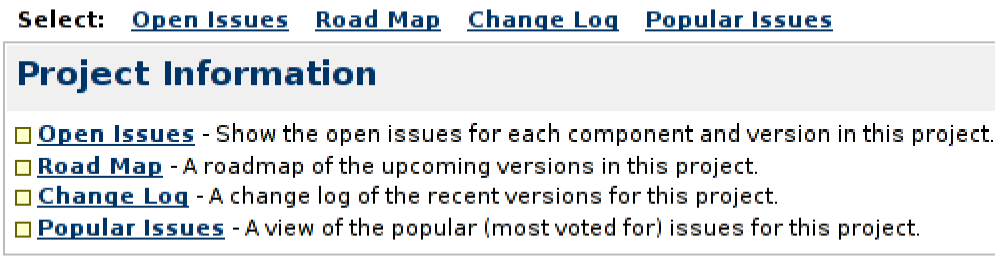
Maven will create a new folder MY_PLUGIN and provide some default files. Check the attachment for how the plugin works.

Cheers,

Robby

Project Tab Panel Plugin Module

The Project Tab Panel plugin module allows you to add new tabs to the 'Browse Projects' page.



All these tab panels ('Road Map', 'Change Log', 'Popular Issues' and 'Open Issues') are implemented as plugins. New project tab panels can be implemented to display project-specific info.

Here is an example panel module descriptor:

```
<!--
The class defined should implement
com.atlassian.jira.plugin.projectpanel.ProjectTabPanel
and it may be useful to use the functionality provided by
com.atlassian.jira.plugin.projectpanel.impl.GenericProjectTabPanel.
-->
<project-tabpanel key="roadmap-panel" name="Road Map Panel"
    class="com.atlassian.jira.plugin.projectpanel.impl.VersionsProjectTabPanel">
    <description key="projectpanels.roadmap.description">
    A roadmap of the upcoming versions in this project.
    </description>
    <label key="common.concepts.roadmap" />
    <!-- this is a number defining the order of all panels.
    The system panels are 10, 20, 30 and 40. -->
    <order>20</order>
    <!-- this template produces the HTML for the panel -->
    <resource type="velocity" name="view"
    location="templates/plugins/jira/projectpanels/roadmap-panel.vm" />
    <!-- this properties files contains i18n keys for the panel -->
    <resource type="i18n" name="i18n"
    location="com.atlassian.jira.plugins.projectpanels.roadmap" />
</project-tabpanel>
```

Report Plugin Module

Purpose of this Module Type

A report plugin module defines a report within JIRA. A JIRA report can display statistical information based on all elements within JIRA - e.g. issues, projects, users, issue types, etc. Reports have HTML results and (optionally) Excel results as well. These results are rendererd by Velocity templates included with the plugin. A report can also accept parameters selected by the user before running.

Configuration

The root element for the report plugin module is `report`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the component. The class must implement `com.atlassian.jira.plugin.report.Report`, but we recommend that you extend the convenience class `com.atlassian.jira.plugin.report.impl.AbstractReport` in your plugin.	
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. ℹ Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the component.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of the component.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this report module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
label	✓	The user-visible name of this portlet. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
resource type="velocity"	✓	Used to render the report results. The results format is whatever the template can output.
resource type="18n"		A Java properties file within the plugin that specifies internationalization values.
properties		Used to generate the report's configuration parameters (see Configuring Plugins with Object Configurable Parameters for details on these properties).

Description

In order to make a custom report available within JIRA, it is necessary to create a report plugin module. As with all plugin modules, the report plugin will consist of the following components:

- Java classes encapsulating report logic
- Resource templates for display of the report
- Plugin descriptor to enable the report module in JIRA

all contained within a single JAR file.

Report Logic

The Java classes include the necessary logic to retrieve the data used in configuring and displaying the report. The module class can implement the Report interface or it can extend AbstractReport . The main methods of interest are:

- generateReportHtml - generate HTML view of report
- generateReportExcel - generate Excel view of report
- getParams - retrieve the required data to be passed to the view template
- validate - validate any parameters used in configuring the report

Resource Templates

The second component consists of Velocity templates used to render the report. The templates include:

- Report view - the actual report view
- Excel view - an Excel view for the report (optional)

The plugin system parses the *atlassian-plugin.xml* file for any configuration parameters associated with the report - parameters required in order to display the report. The plugin system constructs a suitable configuration screen requesting the user to specify values for these parameters.

If an Excel view template is provided, users have the ability to view and further manipulate the data through Excel. If the Excel template is provided please ensure that your report also implements the following method:

```
public boolean isExcelViewSupported()
{
    return true;
}
```

Internationalisation

It is also possible to include i18n property files to allow other users to easily translate the strings used in the report for different languages.

Example

This example is taken from JIRA's internal time tracking report.

```
<report key="time-tracking" name="Time Tracking Report"
    class="com.atlassian.jira.plugin.report.impl.TimeTrackingReport">
    <description key="report.timetracking.description">
        This report shows the time tracking details for a specific project.
    </description>

    <!-- the label of this report, which the user will use to select it -->
    <label key="report.timetracking.label" />

    <!-- the 'view' template is used to render the HTML result -->
    <resource type="velocity" name="view"
        location="templates/plugins/jira/reports/time-tracking-report.vm" />
    <!--
        The 'excel' template is used to render an Excel result.
        The 'Excel view' of the report will only be visible if
        this template exists for the plugin module
    -->
    <resource type="velocity" name="excel"
        location="templates/plugins/jira/reports/time-tracking-report-excel.vm" />

    <!-- this is a .properties file containing the i18n keys for this report -->
    <resource type="i18n" name="i18n"
        location="com.atlassian.jira.plugins.reports.timetracking" />

    <!-- the properties of this report which the user must select before running it -->
    <properties>
        <property>
            <key>versionId</key>
            <name>common.concepts.version</name>
            <description>report.timetracking.version.description</description>
            <!-- valid types are string, text, long, select, date -->
            <type>select</type>
            <!-- the values generator is a class which will
            generate values for this select list -->
            <values class="com.atlassian.jira.portal.VersionOptionalValuesGenerator"/>
        </property>
        <property>
            <key>sortingOrder</key>
            <name>report.timetracking.sortingorder</name>
            <description>report.timetracking.sortingorder.description</description>
            <type>select</type>
            <values class="com.atlassian.jira.portal.SortingValuesGenerator"/>
        </property>
        <property>
            <key>completedFilter</key>
            <name>report.timetracking.filter</name>
            <description>report.timetracking.filter.description</description>
            <type>select</type>
            <values class="com.atlassian.jira.portal.FilterValuesGenerator"/>
        </property>
    </properties>
</report>
```

In this example, the report logic is encapsulated in the TimeTrackingReport Java class, the view template location is specified in the *templates/plugins/jira/reports/time-tracking-report.vm* directory and the internationalisation property files are located at *com.atlassian.jira.plugins.reports.timetracking*. Following that, the parameters required to configure the report are specifed - in this case, the version, the sort order and a filter.

Notes

For more details, see the tutorial on creating a JIRA report.

RPC Endpoint Plugin Module

The RPC endpoint plugin modules enable you to publish new SOAP and XML-RPC endpoints within JIRA.

These endpoints allow you to expose your own remote web services to the outside world.

Here are two example RPC endpoint descriptors:

```
<rpc-soap key="soap" name="System SOAP Services"
    class="com.atlassian.jira.rpc.soap.JiraSoapServiceImpl">
    <description>The standard JIRA SOAP services.</description>
    <service-path>jiraservice-v1</service-path>
    <published-interface>
        com.atlassian.jira.rpc.soap.JiraSoapService
    </published-interface>
</rpc-soap>

<rpc-xmlrpc key="xmlrpc" name="System XML-RPC Services"
    class="com.atlassian.jira.rpc.xmlrpc.JiraXmlRpcService">
    <description>The standard JIRA XML-RPC services.</description>
    <service-path>jira1</service-path>
</rpc-xmlrpc>
```

The first defines a SOAP service, the second an XML-RPC service. These objects (class="x") will be published via Glue or Apache XML-RPC respectively. The **`service-path`** element defines where in the URL namespace the services will be published. The **`published-interface`** element for the SOAP module defines which interface will be published (XML-RPC publishes all methods of the object).

Please take note that you also have to create a Component Plugin Module to avoid the client getting `NullPointerException`, e.g.

```
<component key="component-FoobarSoapService" name="Foobar SOAP Service Component"
class="com.atlassian.jira.rpc.FoobarSoapServiceImpl">
    <interface>com.atlassian.jira.rpc.FoobarSoapService</interface>
</component>

<rpc-soap key="soap-foobar" name="Foobar SOAP Service"
class="com.atlassian.jira.rpc.FoobarSoapServiceImpl">
    <description>Foobar SOAP service.</description>
    <service-path>foobarservice</service-path>
    <published-interface>com.atlassian.jira.rpc.FoobarSoapService</published-interface>
</rpc-soap>
```

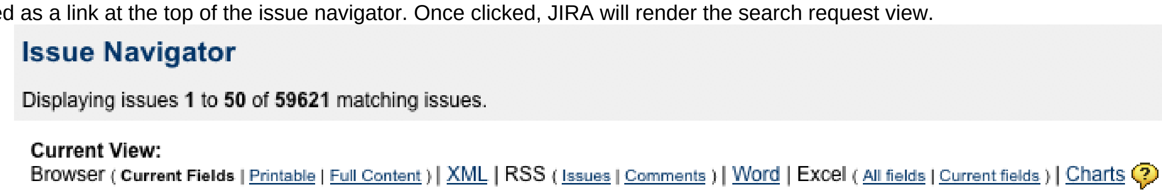
You can learn more about RPC plugins from looking at JIRA's system RPC plugin. The source to this plugin is also freely available, and serves as an excellent learning resource.

> You may also wish to see the Creating a XML-RPC Client and Creating a SOAP Client if you're interested in creating a JIRA remote client.

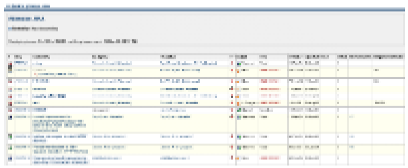
Search Request View Plugin Module

> Search request view plugin modules were implemented in the JIRA 3.7 release. They are not available in previous releases.

Search request view plugin modules are used to display different representations of search results in the issue navigator. They will be displayed as a link at the top of the issue navigator. Once clicked, JIRA will render the search request view.



Here's what the bundled 'Printable' view looks like:



Search request views can be used to render the search results in any possible representation. Some popuplar choices are for example RSS or XML.

The Search Request View Plugin Module

A search request view plugin consists of 3 components:

- The plugin module definition in `atlassian-plugin.xml`
- The view implementation class defining any logic needed to render a view
- Any number of view templates defining how to render the view.

Let's attempt a sample implementation, to render the results of a search request in this format:

```
<issues filtername="My filter">
   <issue>
      <key>HSP-1</key>
      <summary>Sample issue</summary>
   </issue>
   <issue>
      <key>MKY-1<key>
      <summary>Another sample issue</summary>
   </issue>
</issues>
```

Plugin Module Definition

First a definition of the plugin is needed in your plugin's atlassian-plugin.xml:

```
...
    <search-request-view key="simple-searchrequest-xml" name="Simple XML"

class="com.atlassian.jira.sample.searchrequest.SimpleSearchRequestXmlView" state='enabled'
                         fileExtension="xml" contentType="text/xml">
        <resource type="velocity" name="header" location="templates/searchrequest-xml-header.vm"/>
        <resource type="velocity" name="singleissue"
location="templates/searchrequest-xml-singleissue.vm"/>
        <resource type="velocity" name="footer" location="templates/searchrequest-xml-footer.vm"/>
        <order>100</order>
    </search-request-view>
...
```

The search-request-view module is fairly straight-forward. It defines a unique **key** for the module, a **name** which will be used for the link in the issue navigator and the view implementation **class**. Further it also defines what **contentType** to return when displaying this view and a number of view resources. Finally the **order** can be used to control in which order the links appear in the IssueNavigator.

Search Request View Implementation Class

The view implementation class below extends a convenience class available in JIRA to make writing search request views easier, namely AbstractSearchRequestView. All that's left to do then is to implement the `writeSearchResults()` method.

If a search request view needs more control (e.g. control the HTTP headers used in the returned view), then an implementation class can implement the SearchRequestView interface directly.

SimpleSearchRequestXmlView.java

```
...

/**
 * Sample implementation of a simple XML search request view.
 * <p/>
 * Note that this class extends {@link
com.atlassian.jira.plugin.searchrequestview.AbstractSearchRequestView}. This
 * isn't necessary but makes things a lot simpler.  It is also possible to implement the {@link
 * com.atlassian.jira.plugin.searchrequestview.SearchRequestView} interface directly.
 */
public class SimpleSearchRequestXmlView extends AbstractSearchRequestView
{
    private final JiraAuthenticationContext authenticationContext;
    private final SearchProviderFactory searchProviderFactory;
    private final IssueFactory issueFactory;
    private final SearchProvider searchProvider;

    public SimpleSearchRequestXmlView(JiraAuthenticationContext authenticationContext,
SearchProviderFactory searchProviderFactory,
            IssueFactory issueFactory, SearchProvider searchProvider)
```

```
    {
        this.authenticationContext = authenticationContext;
        this.searchProviderFactory = searchProviderFactory;
        this.issueFactory = issueFactory;
        this.searchProvider = searchProvider;
    }

    public void writeSearchResults(final SearchRequest searchRequest, final SearchRequestParams
searchRequestParams, final Writer writer)
    {
        final Map defaultParams =
JiraVelocityUtils.getDefaultVelocityParams(authenticationContext);

        //Need to put the filtername into the velocity context.  This may be null if this is an
anoymous filter.
        final Map headerParams = new HashMap(defaultParams);
        headerParams.put("filtername", searchRequest.getName());
        try
        {
            //First we need to write the header
            writer.write(descriptor.getHtml("header", headerParams));

            //now lets write the search results.  This basically iterates over each issue in the
search results and writes
            //it to the writer using the format defined by this plugin.  To ensure that this
doesn't result in huge
            //memory consumption only one issue should be loaded into memory at a time.  This can
be guaranteed by using a
            //Hitcollector.
            final Searcher searcher =
searchProviderFactory.getSearcher(SearchProviderFactory.ISSUE_INDEX);
            final Map issueParams = new HashMap(defaultParams);
            //This hit collector is responsible for writing out each issue as it is encountered in
the search results.
            //It will be called for each search result by the underlying Lucene search code.
            final DocumentHitCollector hitCollector = new IssueWriterHitCollector(searcher,
writer, issueFactory)
            {
                protected void writeIssue(Issue issue, Writer writer) throws IOException
                {
                    //put the current issue into the velocity context and render the single issue
view
                    issueParams.put("issue", issue);
                    writer.write(descriptor.getHtml("singleissue", issueParams));
                }
            };
            //now run the search that's defined in the issue navigator and pass in the
hitcollector from above which will
            //write out each issue in the format specified in this plugin.
            searchProvider.searchAndSort(searchRequest.getQuery(),
authenticationContext.getUser(), hitCollector, searchRequestParams.getPagerFilter());

            //finally lets write the footer.
            writer.write(descriptor.getHtml("footer", Collections.emptyMap()));
        }
        catch (IOException e)
        {
            throw new RuntimeException(e);
        }
        catch (SearchException e)
        {
            throw new RuntimeException(e);
```

```
        }
    }
}
```

View templates

Finally, a number of view templates are needed to display our new view.

First, the header needs to display the **filtername** as an attribute of the `<issues>` tag or simply 'Anonymous' if the view isn't displaying a saved filter:

searchrequest-xml-header.vm

```
#set($displayName = 'Anonymous')
#if($filtername)
    #set($displayName = $textutils.htmlEncode($filtername))
#end
<issues filtername="$displayName">
```

Then to render each issue, we need to construct an `<issue>` tag for each individual issue:

searchrequest-xml-singleissue.vm

```
<issue>
        <key>$!issue.key</key>
        <summary>$!issue.summary</summary>
    </issue>
```

Finally the footer should close the `<issues>` tag:

searchrequest-xml-footer.vm

```
</issues>
```

Example

The full source for the sample plugin above can be downloaded here. If you wish to just try the plugin out feel free to download the plugin jar.

Here's what the sample plugin looks like in action:

And this is a sample search result rendered by the plugin:

```
<issues filtername="All issues">
    <issue>
        <key>HSP-2</key>
        <summary>New issue</summary>
    </issue>
    <issue>
        <key>HSP-1</key>
        <summary>dude</summary>
    </issue>
</issues>
```

Servlet Context Listener Plugin Module

This is only available as of JIRA 4.0 and above.

Purpose of this Module Type

Servlet Context Listener plugin modules allow you to deploy Java Servlet context listeners as a part of your plugin. This helps you to integrate easily with frameworks that use context listeners for initialisation.

Configuration

The root element for the Servlet Context Listener plugin module is **`servlet-context-listener`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The servlet context listener Java class. Must implement `javax.servlet.ServletContextListener`.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the context listener.	N/A
name		The human-readable name of the plugin module. I.e. the human-readable name of the listener.	The plugin key
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false

Elements

Name	Required	Description	Default
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. I.e. the description of the listener.	

Example

Here is an example `atlassian-plugin.xml` file containing a single servlet context listener:

Notes

Some information to be aware of when developing or configuring a Servlet Context Listener plugin module:

- The servlet context you listen for will not be created on web application startup. Instead, it will be created the first time a servlet or filter in your plugin is accessed after each time it is enabled, triggering a new instance of your listener followed by the calling of the listener's `contextCreated()` method. This means that if you disable a plugin containing a listener and re-enable it again, the following will happen:
  1. The `contextDestroyed()` method will be called on your listener after the plugin was disabled.
  2. A new servlet context will be created after the plugin was re-enabled.
  3. Your listener will be instantiated.
  4. The method `contextCreated()` on your listener will be called.

RELATED TOPICS

Information sourced from Plugin Framework documentation

Servlet Context Parameter Plugin Module

> This is only available as of JIRA 4.0 and above.

Purpose of this Module Type

Servlet Context Parameter plugin modules allow you to set parameters in the Java Servlet context shared by your plugin's servlets, filters, and listeners.

Configuration

The root element for the Servlet Context Parameter plugin module is **`servlet-context-param`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. The identifier of the context parameter.	N/A
name		The human-readable name of the plugin module. I.e. The human-readable name of the context parameter.	The plugin key
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false

Elements

Name	Required	Description	Default
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. I.e. the description of the listener.	
param-name	✓	The servlet context parameter name.	N/A
param-value	✓	The servlet context parameter value.	N/A

Example

Here is an example `atlassian-plugin.xml` file containing a single servlet context parameter:

Notes

Some information to be aware of when developing or configuring a Servlet Context Parameter plugin module:

- This parameter will only be available to servlets, filters, and context listeners within your plugin.

RELATED TOPICS

Information sourced from Plugin Framework documentation

Servlet Filter Plugin Module

This is only available as of JIRA 4.0 and above.

Purpose of this Module Type

Servlet Filter plugin modules allow you to deploy Java Servlet filters as a part of your plugin, specifying the location and ordering of your filter. This allows you to build filters that can tackle tasks like profiling and monitoring as well as content generation.

Configuration

The root element for the Servlet Filter plugin module is **`servlet-filter`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The servlet filter Java class must implement `javax.servlet.Filter`.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the servlet filter.	N/A
location		The position of the filter in the application's filter chain. If two plugins provide filters at the same position, the 'weight' attribute (see below) is evaluated. • **after-encoding** - Near the very top of the filter chain in the application, but after any filters which ensure the integrity of the request. • **before-login** - Before the filter that logs in the user with any authentication information included in the request. • **before-decoration** - Before the filter which does decoration of the response, typically with Sitemesh. • **before-dispatch** - At the end of the filter chain, before any servlet or filter which handles the request by default.	before-dispatch
name		The human-readable name of the plugin module. I.e. the human-readable name of the filter.	The plugin key
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false
weight		The weight of the filter, used to decide which order to place the filter in the chain for filters which have specified the same 'location' attribute (see above). The higher weight, the lower the filter's position.	100

Elements

Name	Required	Description	Default
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. I.e. the description of the filter.	
init-param		Initialisation parameters for the filter, specified using `param-name` and `param-value` sub-elements, just as in `web.xml`. This element and its child elements may be repeated.	N/A
resource		A resource for this plugin module. This element may be repeated. A 'resource' is a non-Java file that a plugin may need in order to operate. Refer to Adding Plugin and Module Resources for details on defining a resource.	N/A

url-pattern	✔	The pattern of the URL to match. This element may be repeated. The URL pattern format is used in Atlassian plugin types to map them to URLs. On the whole, the pattern rules are consistent with those defined in the Servlet 2.3 API. The following wildcards are supported: • * matches zero or many characters, including directory slashes • ? matches zero or one character Examples • `/mydir/*` matches `/mydir/myfile.xml` • `/*/admin/*.??ml` matches `/mydir/otherdir/admin/myfile.html`	N/A
dispatcher		Determines when the filter is triggered. You can include multiple `dispatcher` elements. If this element is present, its content must be one of the following: `REQUEST`, `INCLUDE`, `FORWARD`, `ERROR`. Note: This element is only available in Plugin Framework 2.5 and later. If this element is not present, the filter will be fired on all conditions. (This is also the behaviour for Plugin Framework releases earlier than 2.5.)	Filter will be triggered on all conditions

Example

Here is an example `atlassian-plugin.xml` file containing a single servlet filter:

Accessing your Servlet Filter

Your servlet will be accessible within the Atlassian web application via each `url-pattern` you specify, but unlike the Servlet Plugin Module, the `url-pattern` is relative to the root of the web application.

For example, if you specify a `url-pattern` of `/helloworld` as above, and your Atlassian application was deployed at http://yourserver/jira — then your servlet filter would be accessed at http://yourserver/jira/helloworld .

Notes

Some information to be aware of when developing or configuring a Servlet Filter plugin module:

- Your servlet filter's `init()` method will not be called on web application startup, as for a normal filter. Instead, this method will be called the first time your filter is accessed after each time it is enabled. This means that if you disable a plugin containing a filter or a single servlet filter module, and re-enable it again, the filter will be re-created and its `init()` method will be called again.
- Because servlet filters are deployed beneath root, be careful when choosing each `url-pattern` under which your filter is deployed. If you plan to handle the request in the filter, it is recommended to use a value that will always be unique to the world!
- Some application servers, like WebSphere 6.1, won't call servlet filters if there is no underlying servlet to match the URL. On these systems, you will only be able to create a filter to handle normal application URLs.

RELATED TOPICS

Information sourced from Plugin Framework documentation

Servlet Plugin Module

> Servlet plugin modules are implemented in the 3.5 Release. They are not available in previous releases.

Purpose of this Module Type

Servlet plugin modules enable you to deploy Java servlets as a part of your plugins.

Configuration

The root element for the Servlet plugin module is **`servlet`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class	✔	The servlet Java class. Must be a subclass of `javax.servlet.http.HttpServlet`. See the plugin framework guide to creating plugin module instances.	

disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. ℹ Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the servlet.	N/A
name		The human-readable name of the plugin module. I.e. the human-readable name of the servlet.	The plugin key.
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false

Elements

Name	Required	Description	Default
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. I.e. the description of the servlet.	
init-param		Initialisation parameters for the servlet, specified using `param-name` and `param-value` sub-elements, just as in `web.xml`. This element and its child elements may be repeated.	N/A
resource		A resource for this plugin module. This element may be repeated. A 'resource' is a non-Java file that a plugin may need in order to operate. Refer to Adding Plugin and Module Resources for details on defining a resource.	N/A
url-pattern	✔	The pattern of the URL to match. This element may be repeated. The URL pattern format is used in Atlassian plugin types to map them to URLs. On the whole, the pattern rules are consistent with those defined in the Servlet 2.3 API. The following wildcards are supported: • * matches zero or many characters, including directory slashes • ? matches zero or one character Examples • `/mydir/*` matches `/mydir/myfile.xml` • `/*/admin/*.??ml` matches `/mydir/otherdir/admin/myfile.html`	N/A

Example

Here is an example `atlassian-plugin.xml` file containing a single servlet:

Accessing your Servlet

Your servlet will be accessible within the Atlassian web application via each `url-pattern` you specify, beneath the `/plugins/servlet` parent path.

For example, if you specify a `url-pattern` of `/helloworld` as above, and your Atlassian application was deployed at http://yourserver/jira — then your servlet would be accessed at http://yourserver/jira/plugins/servlet/helloworld .

Notes

Some information to be aware of when developing or configuring a Servlet plugin module:

- Your servlet's `init()` method will not be called on web application startup, as for a normal servlet. Instead, this method will be called the first time your servlet is accessed after each time it is enabled. This means that if you disable a plugin containing a servlet, or a single servlet module, and re-enable it again, the servlet is re-instantiated and its `init()` method will be called again.
- Because all servlet modules are deployed beneath a common `/plugins/servlet` root, be careful when choosing each `url-pattern` under which your servlet is deployed. It is recommended to use a value that will always be unique to the world!

RELATED TOPICS

Information sourced from Plugin Framework documentation

User Format Plugin Module

User Format plugin modules are implemented in the JIRA 3.13 release. They are not available in previous releases.

User Format plugin modules are used to display user details in JIRA. JIRA ships with a number of default user format implementations that are used to render the full names for users system wide. You can use User Format plugin modules to implement custom behaviours for these user details. Here are some examples:

- Display a profile picture next to the user.
- Link to an external profile page.
- Display special avatars for users in certain groups.

For more information about plugins in general, read JIRA Plugin Guide. To learn how to install and configure plugins (including macros), read Managing JIRA's Plugins.

The User Format Plugin Module

Here is an example `atlassian-plugin.xml` file containing a single user format plugin module:

```
<atlassian-plugin name='User Format' key='jira.user.format'
i18n-name-key="user.format.plugin.name">
    <plugin-info>
        <description key="user.format.plugin.desc">This plugin renders a user in
JIRA.</description>
        <vendor name="Atlassian Software Systems" url="http://www.atlassian.com"/>
        <application-version min="4.0" max="4.0"/>
        <version>1.0</version>
    </plugin-info>

    <user-format key="profile-link-user-format"
i18n-name-key="user.format.plugin.profile.link.name" name="Profile Link User Format"
            class="com.atlassian.jira.plugin.profile.ProfileLinkUserFormat" system="true">
        <description key="user.format.plugin.profile.link.desc">Simple link to a user's profile
page displaying the user's full name.</description>
        <type i18n-name-key="user.format.type.profile.link">profileLink</type>
        <resource type="velocity" name="view"
location="templates/plugins/userformat/profileLink.vm"/>
    </user-format>
</atlassian-plugin>
```

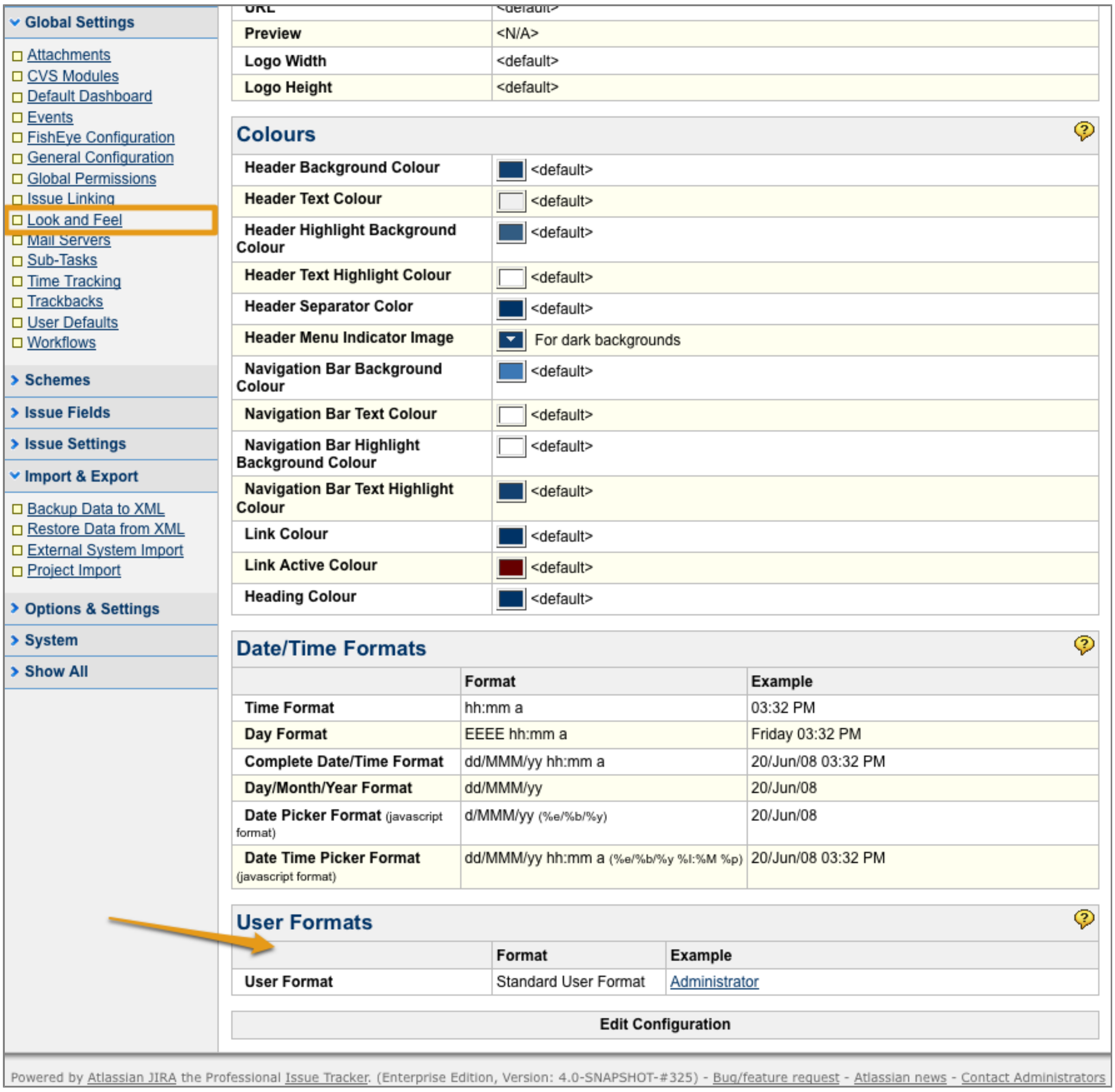
* the **class** attribute of `user-format` needs to implement `com.atlassian.jira.plugin.profile.UserFormat`.

- the **resource** elements (one or more) can be used to implement complicated rendering using velocity.
- The **type** attribute defines where the user format will be used. The system types that are pre-defined include:

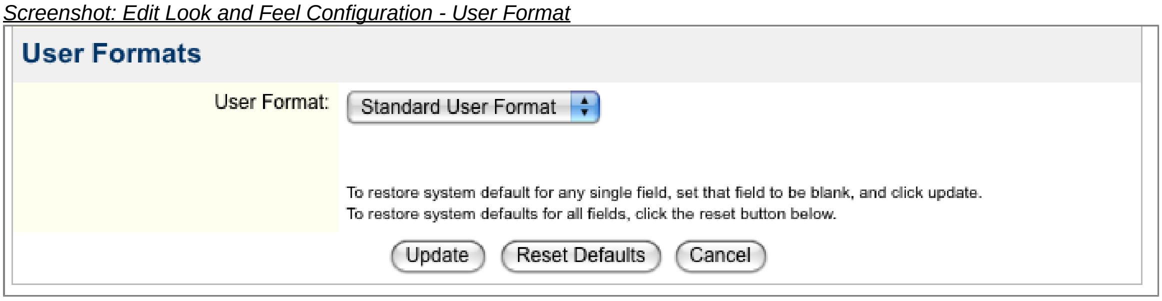
Type	Description
profileLink	Simple link to a user's profile page displaying the user's full name.
fullName	Safely displays the user's full name.
profileLinkSearcher	Simple link to a user's profile page displaying the user's full name from the issue navigator.
profileLinkExternal	Simple link to a user's profile used in emails, word documents, excel downloads etc.
profileLinkActionHeader	Simple link to a user's profile in issue action headers such as comments.
fullProfile	Full user description including user operation links and report links.

Choosing your User Format

Once you've added your own user format, JIRA's 'Look and Feel' administration allows you to select the User Format that will be used across JIRA:
Screenshot: View Look and Feel Configuration



Screenshot: Edit Look and Feel Configuration - User Format



Sample Implementation

The following example demonstrates how to implement a user format that prints a user's full name with a link to the user's profile page in JIRA.

1. First, you will need an implementation of the `UserFormat` interface:

ProfileLinkUserFormat.java

```
package com.atlassian.jira.plugin.profile;

import com.atlassian.core.util.map.EasyMap;
import com.atlassian.jira.user.util.UserUtil;
import com.opensymphony.user.User;

import java.util.Map;

/**
 * Very simple implementation that only renders the users full name with a link to the user's
profile page. If the
 * username is null, it will display 'Anonymous'.  If no user matching the username can be found,
ony the username
 * will be printed.
 *
 * @since v4.0
 */
public class ProfileLinkUserFormat implements UserFormat
{
    private UserFormatModuleDescriptor moduleDescriptor;
    private UserUtil userUtil;
    private final UserFormatManager userFormatManager;

    public ProfileLinkUserFormat(UserFormatModuleDescriptor moduleDescriptor, UserUtil userUtil,
UserFormatManager userFormatManager)
    {
        this.moduleDescriptor = moduleDescriptor;
        this.userUtil = userUtil;
        this.userFormatManager = userFormatManager;
    }

    public String format(String username, String id)
    {
        final Map params = getInitialParams(username, id);
        return moduleDescriptor.getHtml(VIEW_TEMPLATE, params);
    }

    public String format(String username, String id, Map params)
    {
        final Map velocityParams = getInitialParams(username, id);
        velocityParams.putAll(params);

        return moduleDescriptor.getHtml(VIEW_TEMPLATE, velocityParams);
    }

    private Map getInitialParams(final String username, final String id)
    {
        final User user = userUtil.getUser(username);
        final String fullName = userFormatManager.formatUser(username, FullNameUserFormat.TYPE,
id);
        return EasyMap.build("username", username, "user", user, "fullname", fullName, "id", id);
    }
}
```

2. You will then need to implement the view velocity template that used to display the user:

profileLink.vm

```
#if ($username)
    #set ($quote = '"')
    #if($user)
        #set($author = "<a id=${quote}$!{id}_${textutils.htmlEncode($username)}${quote}
href=${quote}${baseurl}/secure/ViewProfile.jspa?name=${velocityhelper.urlencode($username)}${quote}>$
#else
        #set($author = $textutils.htmlEncode($username))
    #end
#else
    #set($author = $i18n.getText('common.words.anonymous'))
#end
${author}
```

3. Finally, you can use this plugin to print the user's details, as shown below:

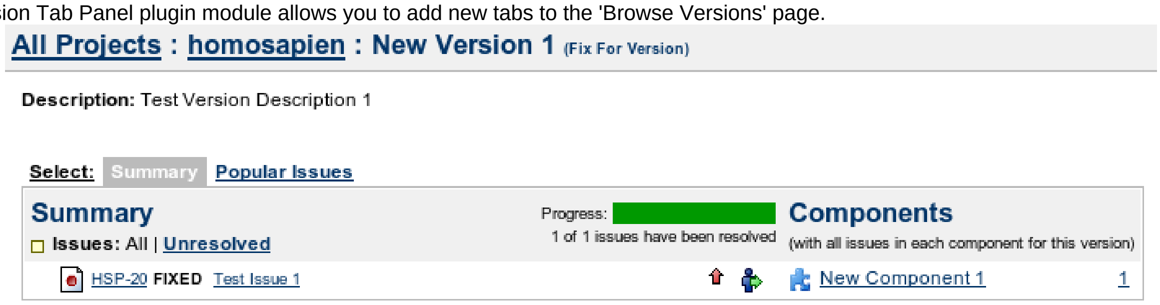
```
$userformat.formatUser($worklog.author, 'profileLink', "worklog_${worklog.id}_header")
```

In this case, `profileLink` the **type** and `worklog_${worklog.id}_header` is the **id** that is passed to the UserFormat.format method for rendering.

Version Tab Panel Plugin Module

The Version Tab Panel plugin module is available in JIRA version 3.10 and later.

The Version Tab Panel plugin module allows you to add new tabs to the 'Browse Versions' page.



These tab panels ('Summary' and 'Popular Issues') are implemented as plugins. New version tab panels can be implemented to display version-specific info.

Here is an example panel module descriptor:

```
<!--
The class defined should implement
com.atlassian.jira.plugin.versionpanel.VersionTabPanel
and it may be useful to use the functionality provided by
com.atlassian.jira.plugin.versionpanel.impl.GenericTabPanel.
-->
<version-tabpanel key="version-openissues-panel" i18n-name-key="versionpanels.openissues.name"
                      name="Open Issues Panel"
class="com.atlassian.jira.plugin.versionpanel.impl.GenericTabPanel">
        <description key="versionpanels.openissues.description">Show the open issues for this
version.</description>
        <label key="common.concepts.openissues"/>
        <!-- this is a number defining the order of all panels.
             The system panels are 10, 20, 30 and 40. -->
        <order>10</order>
        <!-- this template produces the HTML for the panel -->
        <resource type="velocity" name="view"

location="templates/plugins/jira/projectentitypanels/openissues-version-panel.vm"/>
        <!-- this properties files contains i18n keys for the panel -->
        <resource type="i18n" name="i18n"
location="com.atlassian.jira.plugins.versionpanels.openissues"/>
    </version-tabpanel>
```

Web Item Plugin Module

This is only available as of JIRA 3.7 and above.

Purpose of this Module Type

Web Item plugin modules allow plugins to define new links in application menus.

Configuration

The root element for the Web Item plugin module is **`web-item`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`.	N/A
name		The human-readable name of the plugin module. Used only in the plugin's administrative user interface.	
section	✔	Location into which this web item should be placed. For non-sectioned locations, this is just the location key. For sectioned locations it is the location key, followed by a slash ('/'), and the name of the web section in which it should appear.	N/A
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false
weight		Determines the order in which web items appear. Items are displayed top to bottom or left to right in order of ascending weight. The 'lightest' weight is displayed first, the 'heaviest' weights sink to the bottom. The weights for most applications' system sections start from 100, and the weights for the links generally start from 10. The weight is incremented by 10 for each in sequence so that there is ample space to insert your own sections and links.	1000

Elements

The table summarises the elements. The sections below contain further information.

Name	Required	Description	Default
condition		Defines a condition that must be satisfied for the web item to be displayed. If you want to 'invert' a condition, add an attribute 'invert="true"' to it. The web item will then be displayed if the condition returns false (not true).	N/A
conditions		Defines the logical operator type to evaluate its condition elements. By default 'AND' will be used.	AND
context-provider		Allows dynamic addition to the velocity context available for various web item elements (in XML descriptors only). Currently only one context-provider can be specified per web item and section.	
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. I.e. the description of the web item.	
icon		Defines an icon to display with or as the link. **Note:** In some cases the icon element is required. Try adding it if your web section is not displaying properly.	N/A
label	✔	Is the i18n key that will be used to look up the textual representation of the link.	N/A
link	✔	Defines where the web item should link to. The contents of the link element will be rendered using Velocity, allowing you to put dynamic content in links. For more complex examples of links, see below.	N/A
param		Parameters for the plugin module. Use the 'key' attribute to declare the parameter key, then specify the value in either the 'value' attribute or the element body. This element may be repeated. An example is the configuration link described in Adding a Configuration UI for your Plugin. This is handy if you want to use additional custom values from the UI.	N/A
resource		A resource for this plugin module. This element may be repeated. A 'resource' is a non-Java file that a plugin may need in order to operate. Refer to Adding Plugin and Module Resources for details on defining a resource.	N/A
tooltip		Is the i18n key that will be used to look up the textual mouse-over text of the link.	N/A

Label Elements

Label elements may contain optional parameters, as shown below:

* The parameters allow you to insert values into the label using Java's MessageFormat syntax.
* Parameter names must start with `param` and will be mapped in *alphabetical order* to the substitutions in the format string. I.e. param0 is {0}, param1 is {1}, param2 is {2}, etc.
* Parameter values are rendered using Velocity, allowing you to include dynamic content.

Tooltip Elements

Tooltip elements have the same attributes and parameters as the label elements. See above.

Link Elements

Link elements may contain additional information:

* The `linkId` is **optional**, and provides an XML id for the link being generated.
* The `absolute` is **optional** and defaults to false unless the link starts with `http://` or `https://`

The body of the link element is its URL. The URL is rendered with Velocity, so you can include dynamic information in the link. For example, in Confluence, the following link would include the page ID:

Icon Elements

Icon elements have a `height` and a `width` attribute. The location of the icon is specified within a link element:

Param Elements

Param elements represent a map of key/value pairs, where each entry corresponds to the param elements attribute: `name` and `value` respectively.

The value can be retrieved from within the Velocity view with the following code, where $item is a `WebItemModuleDescriptor`:

If the `value` attribute is not specified, the value will be set to the body of the element. I.e. the following two param elements are equivalent:

Context-provider Element

Available:	Atlassian Plugins 2.5, Confluence 2.5, Bamboo 3.0, JIRA 4.2 and later

The context-provider element adds to the Velocity context available to the web section and web item modules. You can add what you need to the context, to build more flexible section and item elements. Currently only one context-provider can be specified per module. Additional context-providers are ignored.

The `context-provider` element must contain a class attribute with the fully-qualified name of a Java class. The referenced class:

* must implement `com.atlassian.plugin.web.ContextProvider`, and
* will be auto-wired by Spring before any additions to the Velocity context.

For example, the following context-provider will add `historyWindowHeight` and `filtersWindowHeight` to the context.

In the following example, `HeightContextProvider` extends `AbstractJiraContextProvider`, which is only available in JIRA and happens to implement `ContextProvider`. The `AbstractJiraContextProvider` conveniently extracts the `User` and `JiraHelper` from the context map, which you would otherwise have to do manually.

The above `HeightContextProvider` can be used by nesting the following element in a web item module.

The newly added context entries `historyWindowHeight` and `filtersWindowHeight` can be used in the XML module descriptors just like normal velocity context variables, by prefixing them with the dollar symbol ($):

Condition and Conditions Elements

Conditions can be added to the web section, web item and web panel modules, to display them only when **all** the given conditions are true.

Condition elements must contain a class attribute with the fully-qualified name of a Java class. The referenced class:

- must implement `com.atlassian.plugin.web.Condition`, and
- will be auto-wired by Spring before any condition checks are performed.

Condition elements can take optional parameters. These parameters will be passed in to the condition's `init()` method as a map of string key/value pairs after autowiring, but before any condition checks are performed. For example:

To invert a condition, add the attribute 'invert="true"' to the condition element. This is useful where you want to show the section if a certain condition is *not* satisfied.
Conditions elements are composed of a collection of condition/conditions elements and a type attribute. The type attribute defines what logical operator is used to evaluate its collection of condition elements. The type can be one of **AND** or **OR**.

For example: The following condition is true if the current user is a system administrator OR a project administrator:

Example

Here is an example `atlassian-plugin.xml` file containing a single web item:

See Also

- Web Fragments — these allow you to insert your Web Items and Web Sections at particular locations in the JIRA user interface

Web Resource Plugin Module

JIRA plugins may define downloadable resources. If your plugin requires JIRA to serve additional static Javascript or CSS files, you will need to use downloadable web resources to make them available. Web resources differ from Downloadable Plugin Resources in that web resources are added at the top of the page in the header.

> This is only available as of JIRA 3.7 and above.

Purpose of this Module Type

Web Resource plugin modules allow plugins to define downloadable resources. If your plugin requires the application to serve additional static Javascript or CSS files, you will need to use downloadable web resources to make them available. Web resources are added at the top of the page in the header with the cache-related headers set to never expire. In addition, you can specify web resources like CSS and JavaScript to be included in specific contexts within the application.

Configuration

The root element for the Web Resource plugin module is **`web-resource`**. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the web resource.	N/A
name		The human-readable name of the plugin module. I.e. the human-readable name of the web resource.	The plugin key

system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false

Elements

Name	Required	Description	Default
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. I.e. the description of the resource.	
resource	✔	A resource for this plugin module. This element may be repeated. A 'resource' is a non-Java file that a plugin may need in order to operate. Refer to Adding Plugin and Module Resources for details on defining a resource.Currently, supported file types are .css and .js. For web resources, the `type` attribute must be 'download'.	N/A
dependency		Dependencies for the web resource module. A web resource can depend on other web resource(s) to be available. Dependencies are defined in the format 'pluginKey:webResourceKey' e.g. `<dependency>confluence.web.resources:ajs</dependency>` Note: This element is only available in Plugin Framework 2.2 and later.	N/A
context		Use this element to include web resources like CSS and JavaScript on all screens of a specific type in the application. See below. Note: This element is only available in Plugin Framework 2.5 and later.	
transformation		Use this element to make a particular transformer available to the web resource in the plugin. Example: For a complete description, please refer to the page on Web Resource Transformer Plugin Modules . Note: This element is only available in Plugin Framework 2.5 and later.	
condition		Use this element to define when this web resource should display or not. See Web Item Conditions for more information. Note: This element is only available in Plugin Framework 2.7 or later.	

Example

Here is an example `atlassian-plugin.xml` file containing a single web resource:

Referring to Web Resources

In your plugin, you need to refer to a `WebResourceManager` and call the `requireResource()` method. The reference to `WebResourceManager` can be injected into your constructor:

Web Resource Contexts

In version 2.5 and later of the Plugin Framework, you can automatically include web resources like CSS and JavaScript on all screens of a specific type in the application. These are called 'web resource contexts'. The currently available contexts are:

Context	Description
atl.general	Everywhere except administration screens
atl.admin	Administration screens. Use with care because poorly formed CSS or JavaScript can prevent access to administering the application.
atl.userprofile	User profile screens.

The above contexts are applicable to all Atlassian applications. In addition to these application-independent contexts, each Atlassian application can also supply its own application-specific contexts.

Example: To configure your web resource to be included in every page (both administration and non-administration pages), add `<context>` child elements to your `<web-resource>` element in your `atlassian-plugin.xml`:

Using web resource contexts allows you to provide plugins that dynamically create HTML using JavaScript on any page in the application. For example, the Confluence Content Navigation Plugin includes a snippet of JavaScript on every page in the application, which listens for a particular keyboard shortcut to open a little search box on top the Confluence UI.

Introducing new contexts

If your plugin adds a number of screens to the application, you may find it useful to introduce a new web resource context for your plugin that your plugin web resources (or any other plugin web resource) can hook into, to be automatically included on these screens.

To introduce a new context in your plugin Velocity templates, you can call the `requireResourcesForContext()` method on the `WebResourceManager` object from your Velocity templates:

This will include any resource in the page that specifies a context like this in its definition: `<context>com.acme.plugin.fancy-context</context>`.

We recommend that you namespace your new contexts in this way so as not to clash with any future contexts in the applications themselves or in other plugins.

Batched Mode

The default mode for serving web resources in Plugin Framework 2.2 is batched mode. Batched mode refers to the serving of multiple plugin resources (of the same type) in one request. For example, the two scriptaculous web resources defined above would be served in one request, containing both scriptaculous.js and effects.js. Hence, batching reduces the number of HTTP requests that web browsers need to make to load a web page.

URLs for batched resources are in the following format:

For the above scriptaculous example, the following code will be inserted in the header of the page:

Non-Batched Mode

Prior to Plugin Framework 2.2, each resource defined was served separately. To revert to this non-batched mode, you can either

- use the system property `plugin.webresource.batching.off=true` to turn off batching system wide
- or define a 'batch' parameter on each resource like so:

URLs for non batched resources are in the following format:

For the above scriptaculous example with batching turned off, the following code will be inserted in the header of the page:

Transforming Web Resources

Transformers are only available in Plugin Framework 2.5 and later.

The plugin framework provides web resource transformers that you can use to manipulate static web resources before they are batched and delivered to the browser.

To use a web resource transformer, you need the following elements in your `atlassian-plugin.xml` file:

- **The transformer module:** A **`<web-resource-transformer>`** element, defining the transformer plugin module. This module can be in the same plugin as the web resource, or in a different plugin.
- **Transformation elements in the web resource module:** A **`<transformation>`** element and its child **`<transformer>`** element inside the **`<web-resource>`** block, making a particular transformer available to the web resource in the plugin.

For a complete description and example, please refer to the page on Web Resource Transformer plugin modules.

Notes

- Since the resources are returned with headers that tell the browser to cache the content indefinitely, during development, you may need to hold down the "shift" key while reloading the page to force the browser to re-request the files.

Web Section Plugin Module

This is only available as of JIRA 3.7 and above.

Purpose of this Module Type

Web Section plugin modules allow plugins to define new sections in application menus. Each section can contain one or more links. To insert the links themselves, see the Web Item Plugin Module.

Configuration

The root element for the Web Section plugin module is **`web-section`** It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances.	
disabled		Indicate whether the plugin module should be disabled by default (value='true') or enabled by default (value='false').	false
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`.	N/A
name		The human-readable name of the plugin module. Only used in the plugin's administrative user interface.	
section	✔	Location into which this web item should be placed. For non-sectioned locations, this is just the location key. For sectioned locations it is the location key, followed by a slash ('/'), and the name of the web section in which it should appear.	N/A
system		Indicates whether this plugin module is a system plugin module (value='true') or not (value='false'). Only available for non-OSGi plugins.	false
weight	✔	Determines the order in which web items appear. Items are displayed top to bottom or left to right in order of ascending weight. The 'lightest' weight is displayed first, the 'heaviest' weights sink to the bottom. The weights for most applications' system sections start from 100, and the weights for their links generally start from 10. The weight is incremented by 10 for each in sequence so that there is ample space to insert your own sections and links.	N/A

Elements

The table summarises the elements. The sections below contain further information.

Name	Required	Description	Default
condition		Defines a condition that must be satisfied for the web item to be displayed. If you want to 'invert' a condition, add an attribute 'invert="true"' to it. The web item will then be displayed if the condition returns false (not true).	N/A
conditions		Defines the logical operator type used to evaluate the condition elements. By default 'AND' will be used.	AND
context-provider		Allows dynamic addition to the Velocity context available for various web item elements (in XML descriptors only). Currently only one context-provider can be specified per web item and section.	N/A
description		The description of the plugin module. The 'key' attribute can be specified to declare a localisation key for the value instead of text in the element body. Use this element to describe the section.	
label	✔	Is the i18n key that will be used to look up the textual representation of the link.	N/A
param		Parameters for the plugin module. Use the 'key' attribute to declare the parameter key, then specify the value in either the 'value' attribute or the element body. This element may be repeated. An example is the configuration link described in Adding a Configuration UI for your Plugin. Defines a key/value pair available from the web item. This is handy if you want to use additional custom values from the UI.	N/A
resource		A resource for this plugin module. This element may be repeated. A 'resource' is a non-Java file that a plugin may need in order to operate. Refer to Adding Plugin and Module Resources for details on defining a resource.	N/A
tooltip		Is the i18n key that will be used to look up the textual mouse-over text of the link.	N/A

Label Elements

Label elements may contain optional parameters, as shown below:

- The parameters allow you to insert values into the label using Java's MessageFormat syntax.
- Parameter names must start with `param` and will be mapped in *alphabetical order* to the substitutions in the format string. I.e. param0 is {0}, param1 is {1}, param2 is {2}, etc.
- Parameter values are rendered using Velocity, allowing you to include dynamic content.

Tooltip Elements

Tooltip elements have the same attributes and parameters as the label elements. See above.

Param Elements

Param elements represent a map of key/value pairs, where each entry corresponds to the param elements attribute: `name` and `value` respectively.

The value can be retrieved from within the Velocity view with the following code, where $item is a `WebItemModuleDescriptor`:

If the `value` attribute is not specified, the value will be set to the body of the element. I.e. the following two param elements are equivalent:

Context-provider Element

Available:	Atlassian Plugins 2.5, Confluence 2.5, Bamboo 3.0, JIRA 4.2 and later

The context-provider element adds to the Velocity context available to the web section and web item modules. You can add what you need to the context, to build more flexible section and item elements. Currently only one context-provider can be specified per module. Additional context-providers are ignored.

The `context-provider` element must contain a class attribute with the fully-qualified name of a Java class. The referenced class:

- must implement `com.atlassian.plugin.web.ContextProvider`, and
- will be auto-wired by Spring before any additions to the Velocity context.

For example, the following context-provider will add `historyWindowHeight` and `filtersWindowHeight` to the context.

In the following example, `HeightContextProvider` extends `AbstractJiraContextProvider`, which is only available in JIRA and happens to implement `ContextProvider`. The `AbstractJiraContextProvider` conveniently extracts the `User` and `JiraHelper` from the context map, which you would otherwise have to do manually.

The above `HeightContextProvider` can be used by nesting the following element in a web item module.

The newly added context entries `historyWindowHeight` and `filtersWindowHeight` can be used in the XML module descriptors just like normal velocity context variables, by prefixing them with the dollar symbol ($):

Condition and Conditions elements

Conditions can be added to the web section, web item and web panel modules, to display them only when **all** the given conditions are true.

Condition elements must contain a class attribute with the fully-qualified name of a Java class. The referenced class:

- must implement `com.atlassian.plugin.web.Condition`, and
- will be auto-wired by Spring before any condition checks are performed.

Condition elements can take optional parameters. These parameters will be passed in to the condition's `init()` method as a map of string key/value pairs after autowiring, but before any condition checks are performed. For example:

To invert a condition, add the attribute 'invert="true"' to the condition element. This is useful where you want to show the section if a certain condition is *not* satisfied.
Conditions elements are composed of a collection of condition/conditions elements and a type attribute. The type attribute defines what logical operator is used to evaluate its collection of condition elements. The type can be one of **AND** or **OR**.

For example: The following condition is true if the current user is a system administrator OR a project administrator:

Example

Here is an example `atlassian-plugin.xml` file containing a single web section, using a condition that will be available in JIRA:

See Also

- Web Fragments — these allow you to insert your Web Items and Web Sections at particular locations in the JIRA user interface

Web Fragments

Available:	JIRA 3.7 and later
Changed:	In JIRA 4.0 and later, the `system.user.options` location was added and the method of defining web items and sections for the `system.top.navigation.bar` changed. In JIRA 4.1 and later, the `view.issue.opsbar` location was added. In JIRA 4.2 and later, the `system.user.hover.links` and `jira.hints` locations were added.
Deprecated:	In JIRA 4.0 and later, the `system.user.navigation.bar` location was deprecated and replaced by the `system.user.options` location.

Web Fragments

A web fragment is a link or a section of links inserted at a particular location of the JIRA web interface. A web fragment can also be a menu in JIRA's top navigation bar, which in itself may contain its own links and link sections, or buttons on the issue operations bar.

Plugin Modules Involved in Creating a Web Fragment

A web fragment can consist of two kinds of plugin module:

- A Web Item module defines an individual link that will be displayed in the UI at a particular section/location. For example, this could be an individual item within a JIRA drop-down menu or a button on the issue operations bar.
- A Web Section module defines a collection of links that will be displayed together at a particular location. For example, this could be a group of items within a JIRA drop-down menu (separated by lines) or a group of buttons on the issue operations bar.

Web items or web sections are utilised in a number of different ways, depending on the location of the web fragment you are creating.

Existing Web Fragments in JIRA

You can insert custom web fragments into existing ones in JIRA (e.g. web sections which are 'built in' to JIRA). However, you cannot redefine JIRA's existing web fragments.

We recommend downloading the JIRA source archive, so you can access the appropriate source files that define JIRA's existing web fragments. This will help you:

- Alter the positions of your own web fragments
- Help you ensure `key` values in your own `<web-items>` and `<web-sections>` remain unique.

You need to log in as a user with a commercial license to access the download page for the JIRA source archive.

On this page:

- Web Fragments
- Locations
  - Administration Console Location
  - Preset Issue Filters Drop-down Location
  - Project Configuration Operations Location
  - Top Navigation Bar Location
  - User Name Drop-down Location
  - Issue Operations Bar Locations
  - Hover Profile Links Location
  - Dialog Box Hint Location
  - Deprecated Locations
  - Velocity Context
  - Examples

Locations

Web fragments can be developed for a number of locations throughout the JIRA web interface. This section describes these locations and for each one:

- where you can add web fragments for your plugin
- how you implement web items and web sections plugin modules for these web fragments

Administration Console Location

The **system.admin** location defines web sections and items in the left-hand navigation column of JIRA's administration console.

You can add new web items to existing web sections in the left-hand navigation column of JIRA's administration console (see below), or add new sections to this column along with new items.

Adding New Items to Existing Web Sections

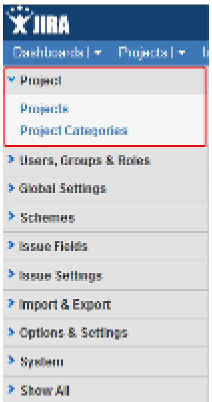
To add your own web item to an existing web section of JIRA's administration console location, your web item must include a section attribute with the value "system.admin/<web-section>", where <web-section> is the section of the left-hand navigation column to which the web item will be added.

For example, to add a web item module that defines a new item in the Global Settings section, your web item module would contain:

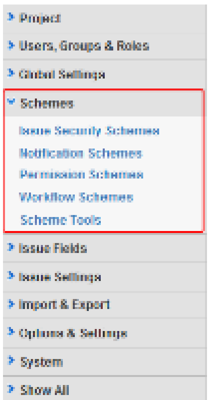
```
<web-item ... section="system.admin/globalsettings" ...>
    ...
</web-item>
```

Existing Web Sections of the Administration Console Location

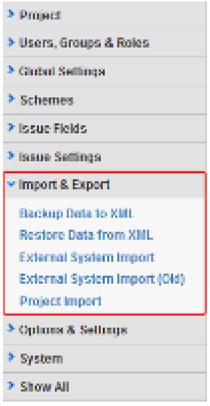
project



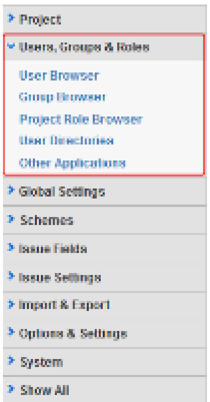
schemes



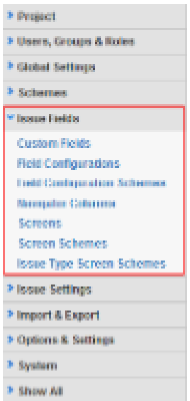
exportimport



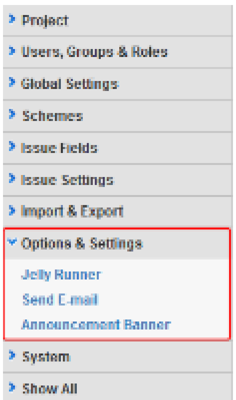
usersgroups



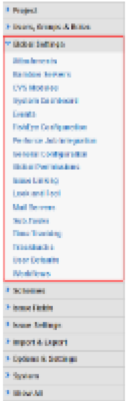
issuefields



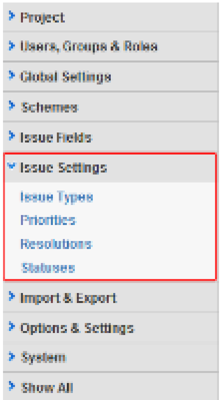
options



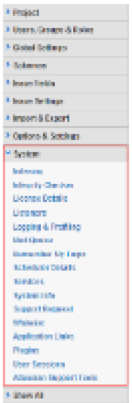
globalsettings



issuesettings



system



Adding Custom Sections and Items

To add your own section to the left-hand navigation column, define a web section that includes a `location` attribute with the value `"system.admin"`.

For example, your web section module would contain:

```
<web-section key="my-custom-admin-console-section" ... location="system.admin" ...>
    ...
</web-section>
```

Adding new web items to your own sections is similar to the method above for adding new web items to existing web sections. However, specify the value of your web section's `key` attribute in the value of your web item's `section` attribute (preceded by the location). Hence, following on from the previous example, your web item would contain:

```
<web-item... section="system.admin/my-custom-admin-console-section" ...>
    ...
</web-item>
```

Customising the Positions of Your Own Items and Sections

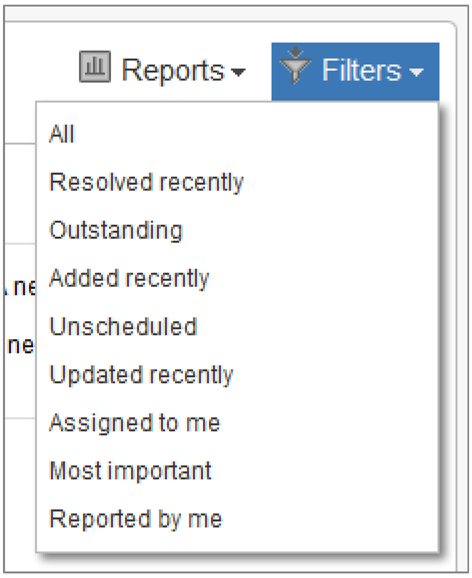
To customise the position of your own web items or sections in this location, add a `weight` attribute to your `<web-item>` or `<web-section>` and adjust its value with respect to JIRA's existing web items or sections. Lower weight values result in these items/sections appearing higher up in the left-hand navigation column.

Source File

To find the values of JIRA's existing web items and sections for the `system.admin` location, view the following file in JIRA's source archive:
`<source-installation-directory>/jira-project/jira-components/jira-core/src/main/resources/webfragment/sy`

Preset Issue Filters Drop-down Location

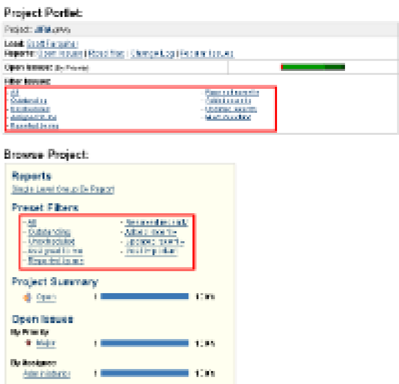
In JIRA 4.0 and later, the **`system.preset.filters`** location defines web items of the 'Filters' drop-down menu on the project summary page of a JIRA project.



In versions of JIRA prior to 4.0, the **`system.preset.filters`** location defines links on the Project portlet of the dashboard and on the right-hand side of Browse Project page.

The filter links are only defined once and reused in both places.

Links are displayed in two columns from left to right, then down (that is, the right column contains every second link).



Adding New Items

To add your own web item to JIRA's preset issue filters drop-down location, your web item must include a `section` attribute with the value `"system.preset.filters"`.

For example, to add a web item module that defines a new 'Filters' drop-down menu link (on a project summary page), your web item module would contain:

```
<web-item ... section="system.preset.filters" ...>
    ...
</web-item>
```

It is not possible to add your own web sections to the `system.preset.filters` location.

Customising the Positions of Items

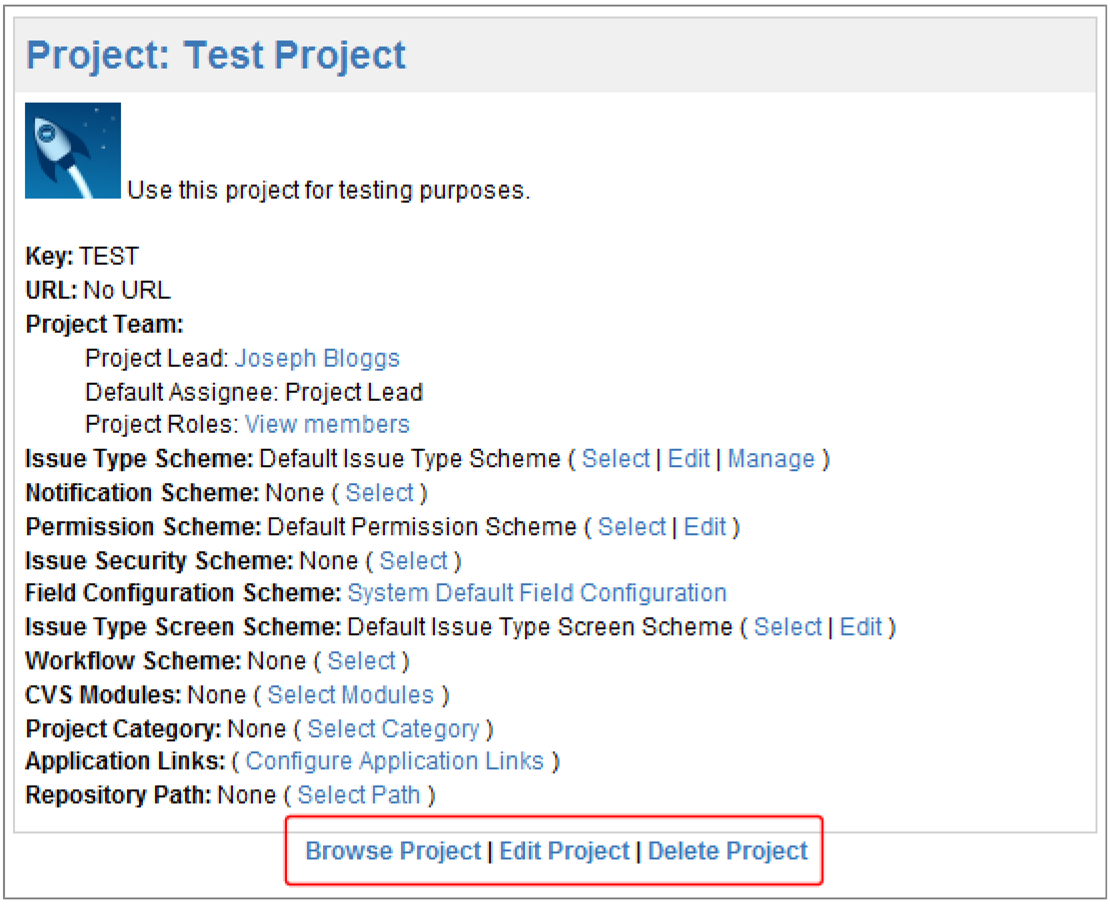
To customise the position of your own web items in this location, add a `weight` attribute to your `<web-item>` and adjust its value with respect to JIRA's existing web items. Lower weight values result in these items appearing to the left and then higher up this 'Filters' drop-down menu.

Source File

To find the values of JIRA's existing web items and sections for the `system.preset.filters` location, view the following file in JIRA's source archive:
`<source-installation-directory>/jira-project/jira-components/jira-core/src/main/resources/system-preset-`

Project Configuration Operations Location

The **`system.view.project.operations`** location defines web items of the project operation links on the project configuration page, which can be accessed by JIRA project administrators.



Adding New Items

To add your own web item to JIRA's project configuration operations location, your web item must include a `section` attribute with the value `"system.view.project.operations"`.

For example, to add a web item module that defines a new project operation link on a project configuration page, your web item module would contain:

```
<web-item ... section="system.view.project.operations" ...>
    ...
</web-item>
```

It is not possible to add your own web sections to the `system.view.project.operations` location.

Customising the Positions of Items

To customise the position of your own web items in this location, add a `weight` attribute to your `<web-item>` and adjust its value with respect to JIRA's existing web items. Lower weight values result in these items appearing further to the left.

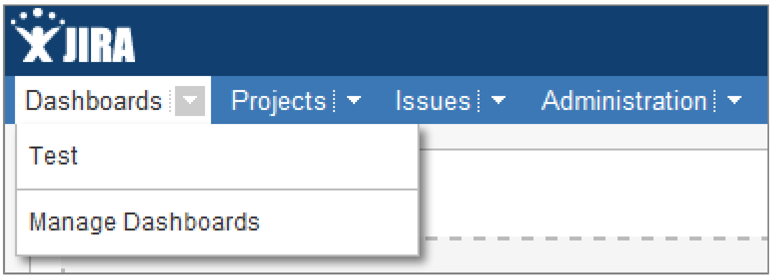
Source File

To find the values of JIRA's existing web items and sections for the system.view.project.operations location, view the following file in JIRA's source archive:
<source-installation-directory>/jira-project/jira-components/jira-core/src/main/resources/system-view-pr

Top Navigation Bar Location

Available in JIRA 4.0 and later.

The **system.top.navigation.bar** location defines web sections and items in JIRA's top navigation bar, which is accessible from all JIRA screens.



You can add new drop-down menus each with their own web sections and web items to this navigation bar, or add new items to JIRA's existing drop-down menus.

Adding Custom Drop-down Menus, Sections and Items

Adding a new drop-down menu with its own sections and items to the top navigation bar can be broken down into three module definition steps.

To add a new drop-down menu with its own sections and items:

1. **Define a <web-item> module for the drop-down menu itself.**
    - This web item module must include:
        - A section attribute with the value "system.top.navigation.bar".
        - A child <link> element with a linkID attribute and a unique value "linkID_for_my_dropdown_menu".
    - For example:

```
<web-item ... section="system.top.navigation.bar" ...>
    ...
    <link linkID="linkID_for_my_dropdown_menu" ...>
        ...
    </link>
    ...
</web-item>
```

2. **Define one or more <web-section> modules for this drop-down menu.**
    - Each of these web section modules must include:
        - A key attribute with a unique value.
        - A location attribute whose value is that of the linkID attribute's value specified in the web item module for the drop-down menu (see 1 above).
    - For example:

```
<web-section key="first_section_of_my_dropdown_menu" ...
location="linkID_for_my_dropdown_menu" ...>
    ...
</web-section>
```

3. **Define a <web-item> module for each item that appears in one of these web sections in this drop-down menu.**
    - Each of these web item modules must include a section attribute whose value is:
        - The linkID attribute's value specified in the web item module for the drop-down menu (see 1 above), followed immediately by
        - A slash symbol /, followed immediately by
        - The key attribute's value specified in the relevant web section module (see 2 above).
    - For example:

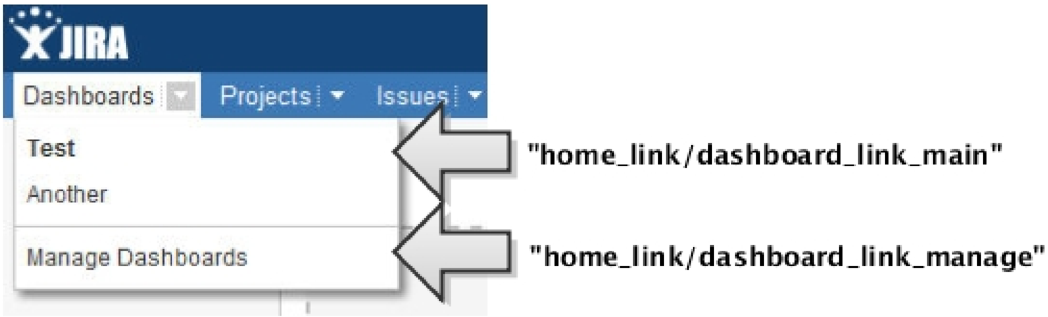
```
<web-item ... section="linkID_for_my_dropdown_menu/first_section_of_my_dropdown_menu"
...>
    ...
</web-item>
```

Adding Items to Existing Drop-down Menus

Based on the process above, you can add your own item to an existing drop-down menu by defining a <web-item> module whose section attribute's value is:

- The linkID attribute's value specified in the web item module for the drop-down menu (defined in the JIRA source code), followed immediately by
- A slash symbol /, followed immediately by
- The key attribute's value specified in the relevant web section module (again found in the JIRA source code).

For example, if you wanted to add a web item to the 'Dasboard' drop-down menu, the following diagram shows what values you would use for the section attribute of this web item, based on the web section of the drop-down menu.



Source File

To find the values of JIRA's existing web items and sections for the system.top.navigation.bar location, view the following file in JIRA's source archive:
<source-installation-directory>/jira-project/jira-components/jira-core/src/main/resources/system-top-nav

Customising the Positions of Menus, Items and Sections

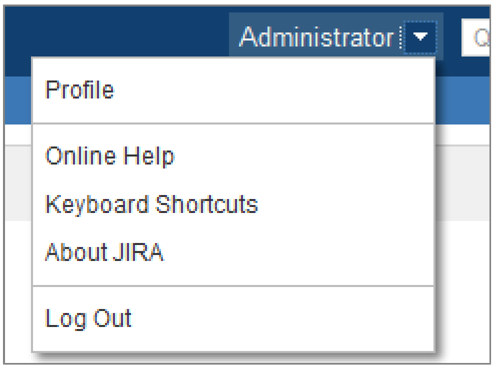
To customise the position of your own web items or sections throughout JIRA's top navigation bar, add a weight attribute to your <web-item> or <web-section> and adjust its value with respect to JIRA's existing web items or sections.

- For web items that define the drop-down menu itself (see 1 above), lower weight values result in menus appearing closer to the left of the user interface.
- For web items and sections defined within a drop-down menu (see two and three above), lower weight values result in these items/sections appearing higher up the drop-down menu.

User Name Drop-down Location

Available in JIRA 4.0 and later.

The **system.user.options** location defines web sections and items in JIRA's user name drop-down menu, which is accessible from all JIRA screens.



You can add new web items to existing web sections in the user name drop-down menu (see below), or add new sections to this menu along with new items.

Adding New Items to Existing Web Sections

To add your own web item to an existing web section of JIRA's user name drop-down location, your web item must include a `section` attribute with the value `"system.user.options/<web-section>"`, where `<web-section>` is the section of the user name drop-down menu to which the web item will be added.

For example, to add a web item module that defines a new item in the 'jira-help' section, your web item module would contain:

```
<web-item ... section="system.user.options/jira-help" ...>
    ...
</web-item>
```

Existing Web Sections of the User Name Drop-down Location

Adding Custom Sections and Items

To add your own section to the user name drop-down menu, define a web section that includes a `location` attribute with the value `"system.user.options"`.

For example, your web section module would contain:

```
<web-section key="my-custom-user-name-dropdown-section" ... location="system.user.options" ...>
    ...
</web-section>
```

Adding new web items to your own sections is similar to the method above for adding new web items to existing web sections. However, specify the value of your web section's `key` attribute in the value of your web item's `section` attribute (preceded by the location). Hence, following on from the previous example, your web item would contain:

```
<web-item ... section="system.user.options/my-custom-user-name-dropdown-section" ...>
    ...
</web-item>
```

Customising the Positions of Items and Sections

To customise the position of your own web items or sections in this location, add a `weight` attribute to your `<web-item>` or `<web-section>` and adjust its value with respect to JIRA's existing web items or sections. Lower weight values result in these items/sections appearing higher up the user name drop-down menu.

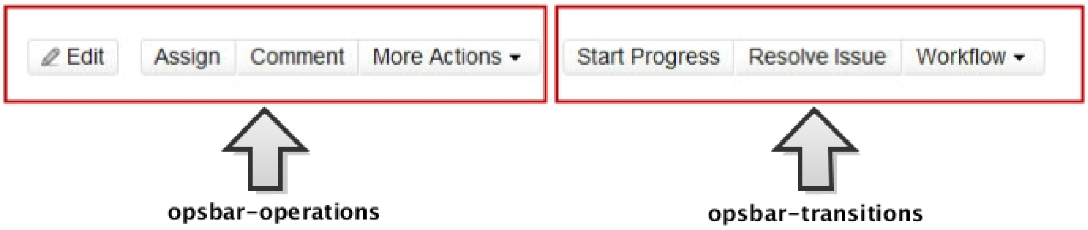
Source File

To find the values of JIRA's existing web items and sections for the `system.user.options` location, view the following file in JIRA's source archive:
`<source-installation-directory>/jira-project/jira-components/jira-core/src/main/resources/webfragment/sy`

Issue Operations Bar Locations

Available in JIRA 4.1 and later.

The two **`opsbar-operations`** and **`opsbar-transitions`** locations together define web sections and items in the issue operations bar, which is visible on all JIRA issues.



You can add new web items to existing web sections within the `opsbar-operations` and `opsbar-transitions` locations of the issue operations bar (see below). You can also add new web sections to the 'More Actions' drop-down menu (in the `opsbar-operations` location).

Adding New Items to Existing Web Sections

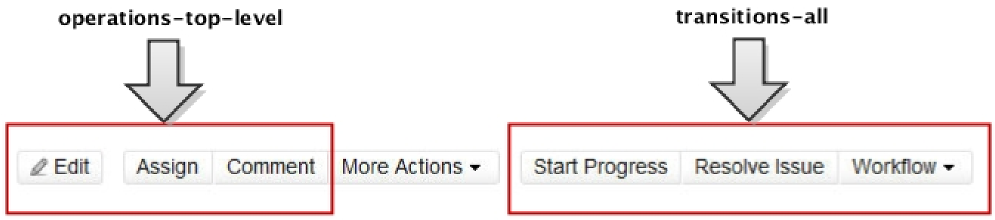
To add your own web item to an existing web section of one of JIRA's issue operations bar locations, your web item must include a section attribute with the value `"<web-section>"`, where `<web-section>` is one of the sections specified in the diagram below.

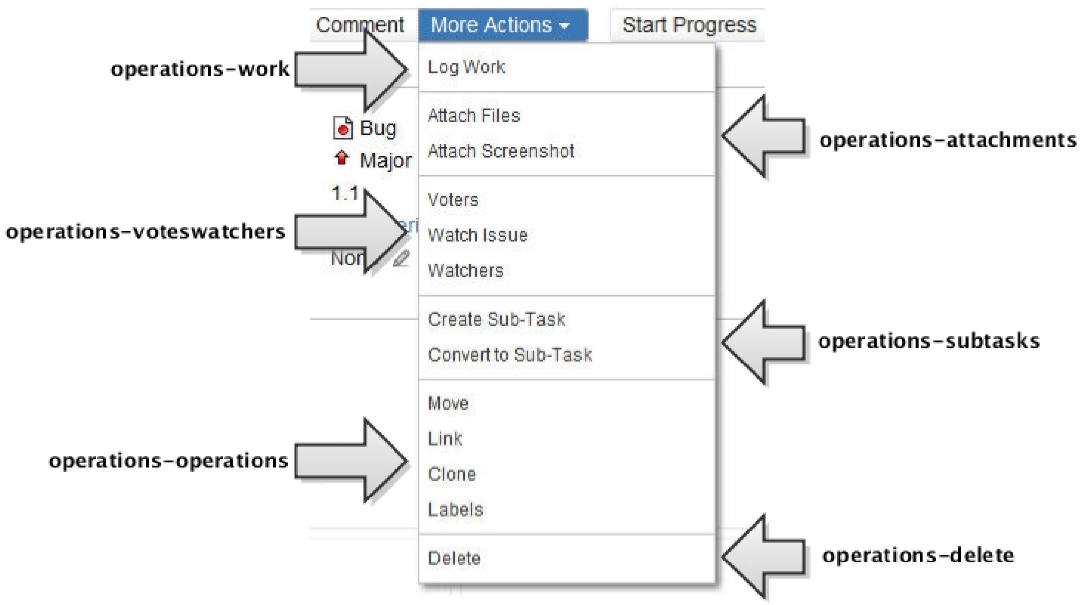
For example, to add a web item module that defines a new item in the 'operations-operations' section, your web item module would contain:

```
<web-item ... section="operations-operations" ...>
    ...
</web-item>
```

Web items added to the 'operations-top-level' section will appear in the top level of the `opsbar-operations` location.
To add an item to the `opsbar-transitions` location, the value of your web item's `section` attribute must be `"transitions-all"`.
Referencing the `opsbar-transitions` location explicitly in your web item definition will not work.

Existing Web Sections of the Issue Operations Bar Locations





Adding Custom Sections and Items

To add your own section to the 'More Actions' drop-down menu, define a web section that includes a `location` attribute with the value `"opsbar-operations"`.

For example, your web section module would contain:

```
<web-section key="my-custom-more-actions-section" ... location="opsbar-operations" ...>
    ...
</web-section>
```

It is not possible to add your own web sections to the `opsbar-transitions` location.

Adding new web items to your own sections is similar to the method above for adding new web items to existing web sections. However, specify the value of your web section's `key` attribute as the value of your web item's `section` attribute. Hence, following on from the previous example, your web item would contain:

```
<web-item ... section="my-custom-more-actions-section" ...>
    ...
</web-item>
```

Customising the Positions of Items and Sections

To customise the position of your own web items or sections throughout the issue operations bar, add a `weight` attribute to your `<web-item>` or `<web-section>` and adjust its value with respect to JIRA's existing web items or sections.

- For web items added to the 'operations-top-level' section, lower weight values result in buttons appearing closer to the left of the user interface.
- For web items and sections which target the 'More Actions' drop-down menu, lower weight values result in these items/sections appearing higher up the drop-down menu.
- For web items added to the 'transitions-all' section, lower weight values result in these items appearing closer to the left and then higher up the 'Workflow' drop-down menu.

  Note that these values are overridden by `opsbar-sequence` property keys, which can be specified by a JIRA administrator through the administration console. See Customising the appearance and order of workflow transitions on the 'View Issue' page for details.

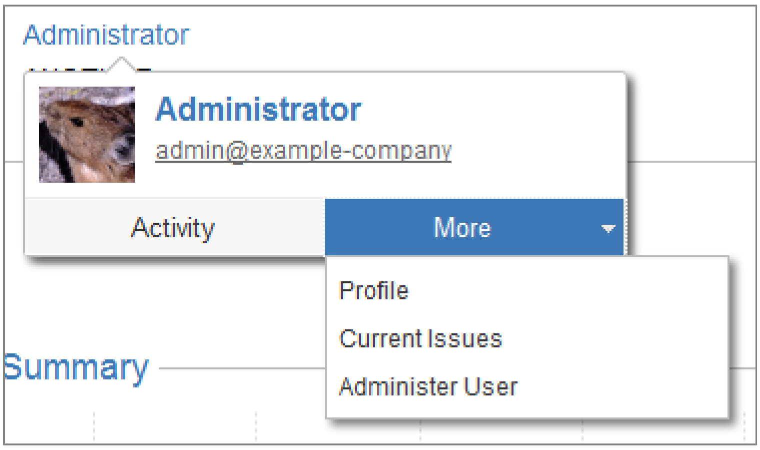
Source File

To find the values of JIRA's existing web items and sections for the `opsbar-operations` and `opsbar-transitions` locations, view the following file in JIRA's source archive:
`<source-installation-directory>/jira-project/jira-components/jira-core/src/main/resources/system-issueop`

Hover Profile Links Location

Available in JIRA 4.2 and later.

The **`system.user.hover.links`** location defines web items in JIRA's hover profile feature, which is accessible when a user hovers their mouse pointer over a JIRA user's name throughout JIRA's user interface.



Adding New Items

To add your own web item to JIRA's hover profile links location, your web item must include a `section` attribute with the value `"system.user.hover.links"`.

For example, to add a web item module that defines a new hover profile link, your web item module would contain:

```
<web-item ... section="system.user.hover.links" ...>
    ...
</web-item>
```

It is not possible to add your own web sections to the `system.user.hover.links` location.

Customising the Positions of Items

To customise the position of your own web items in this location, add a `weight` attribute to your `<web-item>` and adjust its value with respect to JIRA's existing web items. Lower weight values result in these items appearing to the left and then higher up the hover profile drop-down menu.

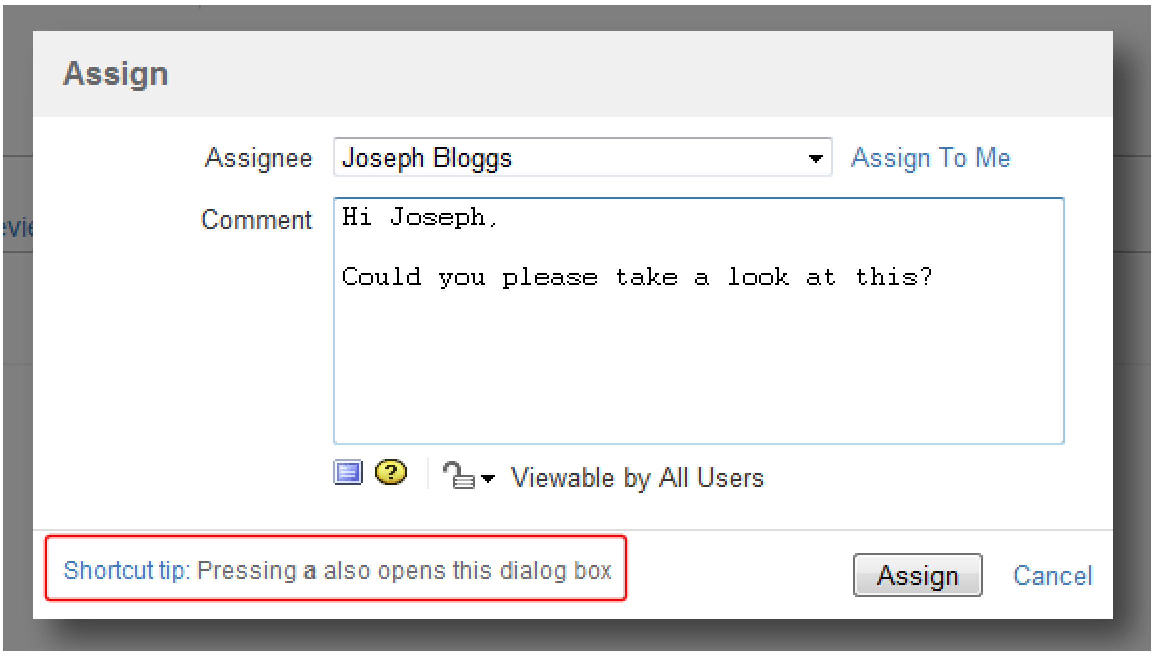
Source File

To find the values of JIRA's existing web items and sections for the `system.user.hover.links` location, view the following file in JIRA's source archive:
`<source-installation-directory>/jira-project/jira-components/jira-core/src/main/resources/system-user-fo`

Dialog Box Hint Location

Available in JIRA 4.2 and later.

The **`jira.hints`** location defines web items that allow you to add hints on JIRA's dialog boxes. You can add hints to most JIRA dialog boxes.



Adding New Items

To add your own web item to JIRA's dialog box hints location for a specific dialog box, your web item must include a `section` attribute with the value `"jira.hints/<LOCATION CONTEXT>"`, where `<LOCATION CONTEXT>` is a predefined 'context' in JIRA that determines on which dialog box your hints will appear.

The following table lists these predefined contexts available in JIRA's dialog box hint location.

Context	Description
TRANSITION	Hints on a 'transition issue' dialog box.
ASSIGN	Hints on the 'Assign' dialog box.
LABELS	Hints on the 'Labels' dialog box.
COMMENT	Hints on 'Comment' dialog boxes.
CLONE	Hints on 'Clone Issue' dialog box.
DELETE_FILTER	Hints on 'Delete Filter' dialog box.
ATTACH	Hints on 'Attach Files' dialog box (not the 'Attach Screenshot' one).
DELETE_ISSUE	Hints on 'Delete Issue' dialog box.
LINK	Hints on 'Link Issue' dialog box.
LOG_WORK	Hints on 'Log Work' dialog box.

For example, to add a web item module that defines hints on the 'Attach Files' dialog box, your web item module would contain:

```
<web-item ... section="jira.hints/ATTACH" ...>
    ...
</web-item>
```

Deprecated Locations

Former Top Navigation Bar Location

Deprecated in JIRA 4.0. Please refer to the Top Navigation Bar location for JIRA 4.0+ (above).

In versions of JIRA prior to 4.0, the **`system.top.navigation.bar`** location could optionally specify up to 2 URL prefixes (in web items with `section="system.top.navigation.bar"`), which are used to determine whether the link is selected or not.

This is done by adding a `param` element with names: `selected` and `selected2`. See Web Item Plugin Module for details on how to add these elements.

Navigation Bar User Options Location

Deprecated in JIRA 4.0. This location has been replaced by the User Name Drop-down location for JIRA 4.0+ (above).

The `system.user.navigation.bar` location, defines web items or sections for user options at the top-right of JIRA's navigation bar.

Custom web items must be added to either the 'links' or 'views' web sections of this location in JIRA:

- `links` web section — allows its links to be plain or pop-up links.
    - To make a link to be a pop-up link, set a `param` element with name `isPopupLink` as true. Additional parameters can be set to dynamically set the height (`windowHeight`), width (`windowWidth`) and whether to have scrollbars (`scrollbars`) for the pop-up.
- `views` web section — displays all its links as icons and requires the `icon` element.

See Web Item Plugin Module for details on how to add these elements.

Velocity Context

The following table lists out the velocity context available for use in the XML descriptor and velocity views.

Name	Type	Description
user	User	Currently logged in user
helper	JiraHelper	Convenient class which holds information such as the current request and selected project
xmlutils	XMLUtils	Utilities for basic XML reading
textutils	TextUtils	Utilities for common String manipulations
urlcodec	JiraUrlCodec	Utility for encoding a string
outlookdate	OutlookDate	Class to give a nice String representation of a date
authcontext	JiraAuthenticationContext	User locale dependant utility class. Can get the current user, locale, I18nBean (for internationalisation) and OutlookDate
dateutils	DateUtils	Utilities for displaying date/time
externalLinkUtil	ExternalLinkUtil	A simple utility class that lets you resolve external links that may need to change, because of partner sites and such
requestContext	VelocityRequestContext	A context that allows for different implementations depending on whether it is running in the scope of a web request, or via email.
req	HttpServletRequest	current request
baseurl	String	The base URL for this instance (velocityRequestContext.getBaseUrl())

Examples

Here is a simple example that uses both the web UI module and the Webwork plugin module.

A webwork plugin module defines a URL-addressable 'action', allowing JIRA's user-visible functionality to be extended or partially overridden. In this example, the action simply prints "Hello World" or greets a given name. However the action can only be executed by entering a specific URL that is not linked from JIRA. This is where the web UI plugin comes in play, by adding the specific URL as a link from the JIRA web interface.

The following plugin modules will:

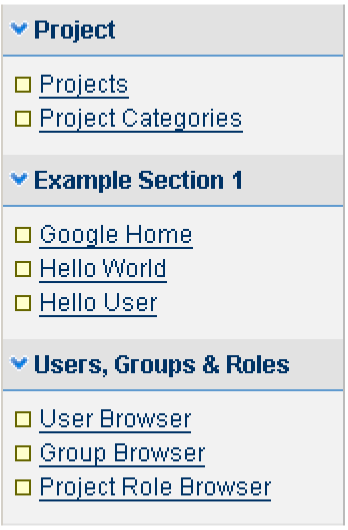
- Register a new webwork action that prints "Hello World" (or "Hello" to a specific name)
- Add a new section to the administration menu called Example 1 Section
- Add 3 links under the new section:
    - Google Home — static link to http://google.com

- Hello World — static link to the HelloWorld action with no name argument
- Hello User — dynamic link to the HelloWorld action with current user's login name

```
<webwork1 key="HelloWorld" name="Hello World Action Example"
i18n-name-key="action.hello.world.name">
        <description key="action.hello.world.desc">Webwork plugin example that prints hello world.
Can also specify a name to say hello to.</description>
        <resource type="i18n" name="i18n"
location="com.atlassian.jira.web.action.HelloWorldAction" />
        <actions>
            <action name="com.example.jira.web.action.HelloWorldAction" alias="Hello">
                <view name="input">/templates/example/helloworld_input.vm</view>
                <view name="success">/templates/example/helloworld.vm</view>
            </action>
        </actions>
    </webwork1>

    <web-section key="example1" name="Example Section" i18n-name-key="section.example.one.name"
location="system.admin" weight="105">
        <description key="section.example.one.desc">Example section in the admin page with example
links</description>
        <label key="section.example.one.label" />
    </web-section>

    <web-item key="google_home" name="Google Home" i18n-name-key="item.google.home.name"
section="system.admin/example1" weight="10">
        <description key="item.google.home.desc">Static link to google.com.</description>
        <label key="item.google.home.label" />
        <link linkId="google_home">http://google.com</link>
    </web-item>

    <web-item key="hello_world" name="Greet world link" i18n-name-key="item.hello.world.name"
section="system.admin/example1" weight="20">
        <description key="item.hello.world.desc">Static link to the HelloWorld action with no name
parameter.</description>
        <label key="item.hello.world.label" />
        <link linkId="hello_world">/secure/Hello!default.jspa</link>
        <condition class="com.atlassian.jira.plugin.webfragment.conditions.UserLoggedInCondition"
/>
    </web-item>

    <web-item key="filter_closed" name="Closed Issues Filter"
i18n-name-key="item.filter.closed.name" section="system.preset.filters" weight="25">
        <description key="item.filter.closed.desc">Custom preset-filter to find closed issues in
current project</description>
        <label key="item.filter.closed.label" />
        <link
linkId="filter_closed">/secure/IssueNavigator.jspa?reset=true&amp;pid=$helper.project.id&amp;status=6
</web-item>
```

Here is the screenshot of the new administration menu:

> The new section "Example 1 Section" appears in between the "Project" and "Users, Groups & Roles" as its weight is in between the two.



> Get the full sample plugin from the JIRA Plugin Development Kit. The sample shows how to combine a simple webwork module with a web UI module to provide you with an interface to your plugin from Jira. You can find a real life application of this in the JIRA Subversion plugin (for Jira 3.7 compatible versions only).

How to create a custom preset filter

How to create a custom preset filter

This 'how to' guide will demonstrate how to create your very own custom preset filter using Web Fragments.

Firstly a preset filter is a link to the JIRA issue navigator with pre-defined filter attributes. These links appear on Browse Project page and on the project portlets.

Creating a new preset-filter is easy and simple to add to your JIRA plugins. All you need to do is define a new web-item module in your `atlassian-plugin.xml` with the section attribute set to '`system.preset.filters`'. JIRA will automatically add a new filter link to both the `browse project page` and the `project portlets`. The following `web-item` template is the minimal required to create a preset filter. (Please refer to the Web Fragments for further details.)

```
<web-item key="[FILTER_KEY]" name="[FILTER_NAME]" section="system.preset.filters">
    <label key="[FILTER_LABEL]" />
    <link>[FILTER_URL]</link>
</web-item>
```

The above attribute values (enclosed in '[' and ']') are explained in the Preset Issue Filters Drop-down Location documentation. The main challenge of making a preset filter is generating the [FILTER_URL]. For example the following relative URL repesents the standard JIRA preset filter `Outstanding`

```
/secure/IssueNavigator.jspa?reset=true&mode=hide&pid=10240&resolution=-1&sorter/field=updated&sorter/
```

This may seem cryptic or cumbersome to create/modify manually and require you to know exactly what the field and its values are. The best approach to generating these links is to use the Issue Navigator to filter the issues as normal. Once you have finished filtering the issues, you simply copy the link provided by the permlink (by right clicking on it and copying the links target, this may depend on the browser you are using).

Step by Step Example: 'All closed issues in current project'

This example will demonstrate how to create a new preset filter called `Closed` which finds all issues in Closed status for a given project.

1. Start off with the minimal web-item module defined above

```
<web-item key="[FILTER_KEY]" name="[FILTER_NAME]" section="system.preset.filters">
    <label key="[FILTER_LABEL]" />
    <link>[FILTER_URL]</link>
</web-item>
```

2. Change the attribute values to desired values (excluding the [FILTER_URL] for now)

```
<web-item key="filter_closed" name="Closed Issues" section="system.preset.filters">
    <label key="Closed" />
    <link>[FILTER_URL]</link>
</web-item>
```

3. Now to generate the filter url
    a. Goto the Issue Navigator and set the following search fields as follows:
        - Project: select any one single project (this is to get the fields id)
        - Status: Closed
        then click on `View` (or `View & Hide`) button
    b. Right click on the permlink and copy its target link (You can also click on the `permlink` and copy from the address bar) to get the absolute URL. You should get something like the following:

    ```
    http://company.com:8080/contextpath/secure/IssueNavigator.jspa?reset=true&pid=10000&stat
    ```

    c. We will need to escape reserved characters such as the ampersand '&' with '&'

    ```
    http://company.com:8080/contextpath/secure/IssueNavigator.jspa?reset=true&amp;pid=10000&
    ```

    d. (Optional) To make your preset-filter work on any JIRA instance (different host/context path), it is better to make the absolute URL from the previous step into a relative one. This step involves simply removing everything before `/secure/IssueNavigator.jspa`.
    The relative URL would be:

    ```
    /secure/IssueNavigator.jspa?reset=true&amp;pid=10000&amp;status=6&amp;sorter/field=issue
    ```

    e. This URL will give us the closed issues for the project with the id `10000`. To make this dynamic we replace `10000` with `$helper.project.id` which will get the current project's id (please refer to Web Fragments for further details). So our final [FILTER_URL] is given by:

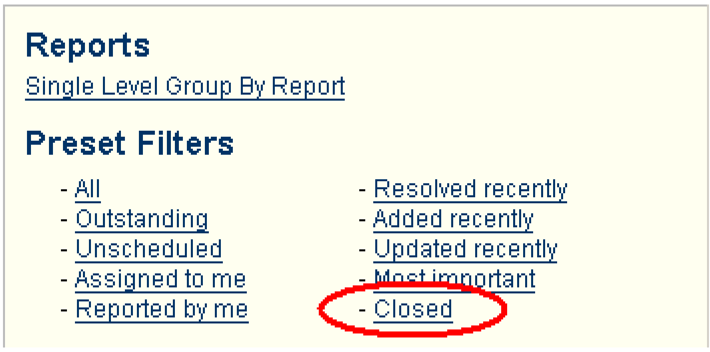
    ```
    /secure/IssueNavigator.jspa?reset=true&amp;pid=$helper.project.id&amp;status=6&amp;sorte
    ```

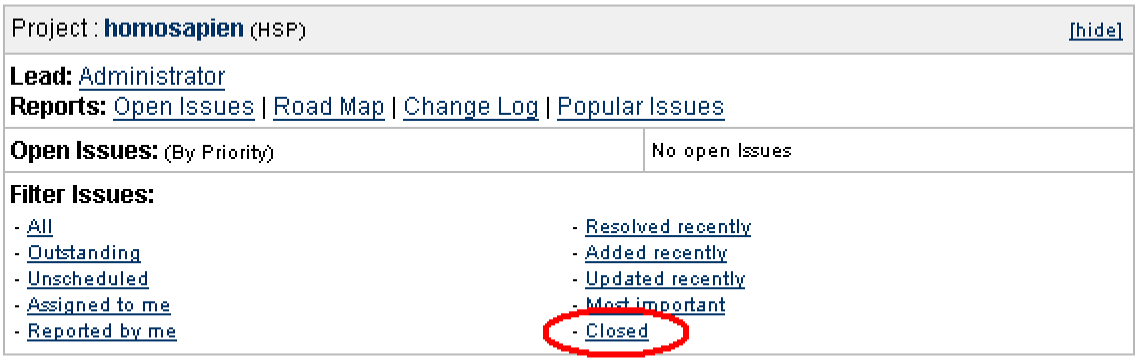
4. The final `web-item` would look something like this:

```
<web-item key="filter_closed" name="Closed Issues" section="system.preset.filters">
    <label key="Closed" />

<link>/secure/IssueNavigator.jspa?reset=true&amp;pid=$helper.project.id&amp;status=6&amp;sorte
```

There are more attributes and elements that can be defined for the web-item module to provide additional features such as internationalisation and ordering of the filters. Please refer to Web Item Plugin Module and Web Section Plugin Module for details.

You can now just add that to your `atlassian-plugin.xml` and it will appear on both the Browse Project page and on the project portlets as follows:





Compiling and installing the preset filter as a plugin in JIRA

The above steps showed how to make a single `plugin module`, this however is not the complete plugin. A JIRA plugin is a single JAR (Java ARchive) file with atleast a plugin descriptor (an XML file called `atlassian-plugin.xml`). This XML file includes one or more of the `plugin module's` and contains additional information specifying the overall plugin's details such as its name, description, version, etc'.

1. The following sample can be used as a template to create the `atlassian-plugin.xml` file.

```
<!-- the plugin key must be unique, think of it as the 'package' of the plugin -->
<atlassian-plugin key="com.atlassian.plugin.sample" name="Sample Plugin">
    <!-- a short block describing the plugin itself -->
    <plugin-info>
        <description>This is a brief textual description of the plugin</description>
        <!-- the version of the plugin -->
        <version>1.0</version>
        <!-- the versions of the application this plugin is for -->
        <application-version min="3.7" max="3.7"/>
        <!-- details of the plugin vendor -->
        <vendor name="Atlassian Software Systems Pty Ltd" url="http://www.atlassian.com"/>
    </plugin-info>

    <!-- ... Add your plugin modules here ... -->
</atlassian-plugin>
```

   Modifying the attributes of the template and adding the preset filter plugin module where marked, the final file will look like the attached: atlassian-plugin.xml.
2. Now the `atlassian-plugin.xml` needs to be packaged as a single JAR file. There are various ways of doing this, two simple ways are:
   - In a command line with `jar` installed, run the following command (with atlassian-plugin.xml in the current directory):

   ```
   jar -cvf plugin-name.jar atlassian-plugin.xml
   ```

   OR
   - Add the `atlassian-plugin.xml` file to a ZIP file (eg. using WinZip/WinRAR), then rename the ZIP file with a `.jar` extension (ie. rename `file.zip` to `file.jar`)
     The final jar file should look something like preset-filter-example-plugin.jar
3. To install the JAR file:
   a. Shut down JIRA
   b. copy the jar file into '.../atlassian-jira/WEB-INF/lib/'
   c. Start up JIRA.
   d. Go to 'Administration > Plugins' and confirm that the plugin is listed and enabled (look for the name specified in atlassian-plugin.xml - eg. Sample Plugin).
   e. Enjoy!

Please note that the steps outlined above are only valid for packaging basic plugins such as the preset filters. For a more comprehensive plugin, you may need to include additional resources. Please refer to the JIRA Plugin Guide and Setting up your plugin project for more details.

You can get a full sample plugin from the Jira Plugin Development Kit which extends the `web-item` defined above by internationalising it and placing the 'Closed' link under the 'All' filter.

Webwork plugin module

Purpose of this Module Type

A webwork plugin module defines a URL-addressible 'action', allowing JIRA's user-visible functionality to be extended or partially overridden.

Configuration

The root element for the WebWork plugin module is `webwork1`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class	✓	The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the module. For this module, it's fine to use `Object`, as the real brains are in the action classes below.	
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier for this module.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of this module.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this WebWork module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
actions	✓	Specifies WebWork 1 <action>s to define. Must contain at least one <action> element.

<action> Element Attributes

Name	Required	Description
name	✓	Full name of the class that implements the WebWork action. Actions in JIRA must extend the class `com.atlassian.jira.action.JiraActionSupport`. The class **must not** live in a package that JIRA has already reserved; authors should avoid the `com.atlassian` namespace altogether.
alias	✓	The path from which this action may be invoked in JIRA. For example, an action with alias `MyNewJiraAction` would be invoked by the URL http://<my-jira-server>/secure/MyNewJiraAction.jspa.

<action> Element Elements

Name	Required	Description
view		Directs where to send the user when the action completes. The `name` attribute maps to the return value from the overridden action methods (see the WebWork documentation for more details; common values are `error`, `input`, and `success`). The element's value is the path to the renderable view that is sent to the user (see Notes for more information).

Example

Here is a sample webwork plugin module:

```
<webwork1 key="qquserissue" name="Quick Create User Issue" class="java.lang.Object">
    <actions>
        <action name="com.atlassian.jira.toolkit.action.QuickCreateUserIssueAction"
alias="QuickCreateUserIssue">
            <view name="createuserissue">/templates/quickcreateuser.vm</view>
        </action>
    </actions>
</webwork1>
```

Webwork plugins effectively extend the actions defined in the JIRA `WEB-INF/classes/actions.xml` file. You should look there for examples of what is possible. There is also a Webwork Sample plugin that contains many other basic examples.

Overriding a JIRA action

By specifying as 'alias' the name of an existing action (in actions.xml), you can override default JIRA behaviour. For example, to override the Administrators.jspa action (the 'Contact Administrators' link at the bottom of every page):

```
<webwork1 key="ASFAdministrators" name="Lists project leads on administrators page"
class="java.lang.Object">
        <actions>
            <action name="org.apache.jira.plugins.actions.ASFAdministrators"
alias="Administrators">
                <view name="success">/templates/asf_administrators.vm</view>
            </action>
        </actions>
    </webwork1>
```

Here, `templates/asf_administrators.vm` is a Velocity template provided by (and bundled inside of) the plugin. It will be rendered when the `org.apache.jira.plugins.actions.ASFAdministrators` action returns.

Use your own package for your action classes!
In the past, plugin authors could rely on a bit of magic: putting their action class in the package `com.atlassian.jira.web.action` was enough to have JIRA find it without specifying the fully qualified class name in `<action name="">`. This was never a good idea, and in a Plugins2 plugin, it will simply not work. Always create a separate package space for your code and stay out of the `com.atlassian` namespace.

Avoid complex inheritance!
You can override existing actions without worry, but you cannot override an already overridden action. JIRA's WebWork implementation isn't smart enough to resolve polymorphic action hierarchies.

Sample Code

- The JIRA sample plugin shows how to display the project leads in each project Administrator's page
- The Webwork Sample plugin contains many simple examples of using Webwork actions
- The Copyright Information for Aattachments page is another example of how to override a default JIRA action.

Notes

- **Renderable Views**: The value of `<view>` should be a Velocity template; in the above example, the template `templates/quickcreateuser.vm` lives in the plugin artifact under that path. JSP views cannot be used from inside plugins; they can be used if they are installed into the JIRA webapp, but this complicates installation, upgrading, and troubleshooting. Use Velocity if you can.

Workflow Plugin Modules

Purpose of this Module Type

The workflow plugin modules allow you to add new capabilities to JIRA's workflow engine.

JIRA uses OSWorkflow as its workflow engine. The web-based workflow editor has a number of plugin modules which allow you to build workflows more easily.

The modules are:

- Conditions - check whether or not a given workflow transition can be executed by a given user
- Functions - perform actions after a workflow transition has been executed

- Validators - check that the data given to a workflow transition is valid

Condition Configuration

The root element for the workflow condition plugin module is `workflow-condition`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the workflow condition, which must implement `com.atlassian.jira.plugin.workflow.WorkflowPluginConditionFactory`. This class is used to provide context for the rendered Velocity templates that supply the condition's views.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the workflow condition.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of the workflow condition.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this workflow condition module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
condition-class	✔	Determines whether the user is allowed to perform this workflow transition. Must implement the OSWorkflow class `com.opensymphony.workflow.Condition`, but JIRA extensions are strongly recommended to extend `com.atlassian.jira.workflow.condition.AbstractJiraCondition`; this implementation provides efficient access to the `Issue` object.
resource type="velocity"		Used to render the views for the condition. The template contexts are populated by the `workflow-condition`'s `class`.

Example

The following condition prohibits all users other than the issue assignee from performing transitions on any given issue.

```
<workflow-condition key="onlyassignee-condition" name="Only Assignee Condition"
    i18n-name-key="admin.workflow.condition.onlyassignee.display.name"
    class="com.atlassian.jira.plugin.workflow.WorkflowAllowOnlyAssigneeConditionFactoryImpl">

    <description key="admin.workflow.condition.onlyassignee">Condition to allow only the assignee
to execute a transition.</description>

    <condition-class>com.atlassian.jira.workflow.condition.AllowOnlyAssignee</condition-class>

    <resource type="velocity" name="view"

location="templates/jira/workflow/com/atlassian/jira/plugin/onlyassignee-condition-view.vm"/>
</workflow-condition>
```

Function Configuration

Workflow functions always execute **after** the workflow transition is executed; they might be more properly named _post-_workflow functions.

The root element for the workflow function plugin module is `workflow-function`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the workflow function. Functions that don't require input should use `com.atlassian.jira.plugin.workflow.WorkflowNoInputPluginFactory`; those that do must implement `com.atlassian.jira.plugin.workflow.WorkflowPluginFunctionFactory`.	
key	✔	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the workflow function.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of the workflow function.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this workflow function module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
function-class	✔	Class that implements the function's logic. Must extend `com.atlassian.jira.workflow.function.issue.AbstractJiraFunctionProvider`.
resource type="velocity"		Used to render the views for the function.
orderable		(true/false) Specifies if this function can be re-ordered within the list of functions associated with a transition. The postion within the list determines when the function actually executes.
unique		(true/false) Specifies if this function is unique; i.e., if it is possible to add multiple instances of this post function on a single transition.
deletable		(true/false) Specifies if this function can be removed from a transition.
addable		Valid values are the `ACTION_TYPE` constants of the `com.atlassian.jira.workflow.JiraWorkflow`; multiple values can be specified through comma-delineation.
weight		An integer value indicating where this function should be called if it is default (see below).
default		(true/false) Specifies if this function should be applied to all workflows.

Example

```
<workflow-function key="update-issue-field-function" name="Update Issue Field"
    class="com.atlassian.jira.plugin.workflow.UpdateIssueFieldFunctionPluginFactory">
    <description>Updates a simple issue field to a given value.</description>

    <function-class>
        com.atlassian.jira.workflow.function.issue.UpdateIssueFieldFunction
    </function-class>

    <orderable>true</orderable>
    <unique>false</unique>
    <deletable>true</deletable>

    <resource type="velocity" name="view"
        location="templates/jira/.../update-issue-field-function-view.vm"/>
    <resource type="velocity" name="input-parameters"
        location="templates/jira/.../update-issue-field-function-input-params.vm"/>
</workflow-function>
```

Validator Configuration

The root element for the workflow validator plugin module is `workflow-validator`. It allows the following attributes and child elements for configuration:

Attributes

Name	Required	Description	Default
class		The class which implements this plugin module. The class you need to provide depends on the module type. For example, Confluence theme, layout and colour-scheme modules can use classes already provided in Confluence. So you can write a theme-plugin without any Java code. But for macro and listener modules you need to write your own implementing class and include it in your plugin. See the plugin framework guide to creating plugin module instances. The Java class of the workflow validator, which must implement `com.atlassian.jira.plugin.workflow.WorkflowPluginValidatorFactory`. This class is used to provide context for the rendered Velocity templates that supply the validator's views.	
key	✓	The identifier of the plugin module. This key must be unique within the plugin where it is defined. Sometimes, in other contexts, you may need to uniquely identify a module. Do this with the **complete module key**. A module with key `fred` in a plugin with key `com.example.modules` will have a complete key of `com.example.modules:fred`. I.e. the identifier of the workflow validator.	N/A
i18n-name-key		The localisation key for the human-readable name of the plugin module.	
name		The human-readable name of the plugin module. I.e. the human-readable name of the workflow validator.	The plugin key.

Elements

Name	Required	Description
description		A human-readable description of this workflow validator module. May be specified as the value of this element for plain text or with the `key` attribute to use the value of a key from the i18n system.
validator-class	✓	Class that performs the validation logic. Must extend `com.opensymphony.workflow.Validator`.
resource type="velocity"		Used to render the views for the validator.

Example

```
<workflow-validator key="permission-validator" name="Permission Validator"
    class="com.atlassian.jira.plugin.workflow.WorkflowPermissionValidatorPluginFactory">
    <description>Validates that the user has a permission.</description>

    <validator-class>
        com.atlassian.jira.workflow.validator.PermissionValidator
    </validator-class>

    <resource type="velocity" name="view"
        location="templates/jira/.../permission-validator-view.vm"/>
    <resource type="velocity" name="input-parameters"
        location="templates/jira/.../permission-validator-input-params.vm"/>
</workflow-validator>
```

Notes

- The `weight` and `default` parameters for workflow functions **should not be used** by plugin authors and **should be considered reserved for JIRA's use**.

For more details, see the How to create Custom Workflow Elements for JIRA 3 page.

Form Token Handling

The information on this page is only applicable to JIRA 4.1 and later versions.

On this page:

- Overview and Purpose
- Form Tokens
- Turning off Form Token Checking
- Instructions for Plugin Developers
    - JIRA WebWork Actions
    - Providing the token in HTML Forms
    - Providing the token in HTML links
    - Accessing the token programatically
- Scripting

Overview and Purpose

JIRA 4.1 and later employs a token authentication mechanism which is utilised whenever JIRA actions are performed either through link request or form submission. This provides JIRA with a means to validate the origin and intent of the request, thus adding an additional level of security against cross-site request forgery. While the core JIRA product and its bundled plugins use this token handling mechanism by default, non-bundled plugins or those developed by third parties may not.

This document provides instructions to JIRA plugin developers on how to incorporate this token handling mechanism into JIRA plugins.

Form Tokens

JIRA 4.1 requires that WebWork actions possess tokens, which are then verified when the form is submitted back to the JIRA server. This is an "opt in" mechanism, whereby actions must declare that they require a token to be present in the request.

Turning off Form Token Checking

Form token checking can be switched off at a system wide level by updating the jira-application.properties file with the following:

```
jira.xsrf.enabled=false
```

Instructions for Plugin Developers

The following subsections provide details on how to implement form token handling into your JIRA plugin.

Please be aware that once form token handling has been implemented into a JIRA plugin:

- Any functions that use screen scraping, such as the 'create sub-task' function in FishEye, will be broken.
- REST API end points will not be affected *unless* they use form encoding.

JIRA WebWork Actions

To enable token checking for a particular Action class

1. Locate the method that is called by the action execution (by default this method is called `doExecute()`)
2. Add the `@com.atlassian.jira.security.xsrf.RequiresXsrfCheck` annotation to this method

Providing the token in HTML Forms

The token is included by default when using a `jiraform`

The token can be included into your own JSPs that don't use jiraforms, by adding the following code:

```
<webwork:component name="'atl_token'" value="/xsrfToken" template="hidden.jsp"/>
```

The following code can be added to Velocity Templates:

```
<input type="hidden" name="atl_token" value="$atl_token" />
```

Providing the token in HTML links

You can do the following in JSPs:

```
MyAction.jspa?myParameter=true&atl_token=<webwork:property value="/xsrfToken"/>
```

or Velocity Templates:

```
MyAction.jspa?myParameter=true&atl_token=${atl_token}
```

Accessing the token programatically

To get hold of the current user's token, you will need to make the following call:

```
import com.atlassian.jira.security.xsrf.XsrfTokenGenerator;
XsrfTokenGenerator xsrfTokenGenerator =
ComponentManager.getComponentInstanceOfType(XsrfTokenGenerator.class);
String token = xsrfTokenGenerator.generateToken(request);
```

Scripting

Scripts that access JIRA remotely may have trouble acquiring or returning a security token, or maintaining an HTTP session with the server. There is a way for scripts to opt out of token checking by providing the following HTTP header in the request:

```
X-Atlassian-Token: no-check
```

RELATED TOPICS

For more information, refer to the Open Web Application Security Project page.

Differences between Plugins1 and Plugins2

On this page:

- Introduction
  - Plugins Framework
  - Plugin versions
    - Plugins1
    - Plugins2
- Development and Installation
  - Configuration
  - Installation
- Dependency Injection
  - The Container
  - Components
    - Plugins1 Components
    - Plugins2 Components
- Java packages

Introduction

Plugins Framework

JIRA uses a library called the Atlassian Plugin Framework to manage its plugins. This library is developed separately to JIRA (it is a shared library used by all the Atlassian products) and therefore has its own versioning.

For example JIRA v4.0 uses Plugin Framework v2.3, JIRA v3.13 uses Plugin Framework v0.23.

Plugin versions

Before Plugins Framework v2 (JIRA v3.13 and earlier), plugins were installed in JIRA by adding the plugin JAR file to JIRA's classpath (WEB-INF/lib). This style of plugin is referred to as "**Plugins1**".

Plugins Framework v2 (JIRA v4.0 and higher) introduced a new way to install plugins. Plugins can be installed in JIRA's "installed-plugins" directory from where they will be installed and managed by an OSGi Container. This type of plugin is referred to as "**Plugins2**".

It is important to note that Plugins2 is not considered a replacement for Plugins1. Each provides some advantages and disadvantages. Plugin developers should consider their particular plugin, and choose which plugin type to use accordingly.

Plugins1

Plugins1 was the original way to install and manage plugins. In JIRA, these are installed by placing the plugin JAR in your WEB-INF/lib/ directory.
(This is a "static plugin". The framework also has another form called a "dynamic Plugins1 plugin", but these are not supported in JIRA).
This means the Java classes in your plugin live in the core application classpath, and are loaded just the same as the core JIRA classes.
If you install two Plugins1 plugins (A and B) in JIRA, then plugin B will be able to use the classes from plugin A as all the classes live in the same ClassLoader. However, Plugin B has no way to declare that it relies on Plugin A. If Plugin A is not installed, then this will cause ClassNotFound exceptions to occur at runtime.

Plugins2

Plugins2 plugins are not installed in the core ClassLoader. They are installed and managed by an OSGi container. This means each Plugin has its own child ClassLoader that loads the classes of that plugin. By default, plugins cannot use the classes of another plugin. However, one plugin can explicitly export some of its packages, and then other plugins can import these dependencies. In this way, the interdependencies can be much better managed.

In addition, a Plugins2 plugin can create its own custom extension points. Effectively, you can allow plugin points for your plugin.

Development and Installation

Configuration

The JAR file for a Plugins1 plugin looks exactly the same as one for Plugins2 with one difference in the configuration file.
The atlassian-plugin.xml for a Plugins2 plugin must declare it is Plugins2 in the `<atlassian-plugin>` tag.

```
<atlassian-plugin key="${atlassian.plugin.key}" name="${project.name}" plugins-version="2">
```

Installation

A Plugins1 plugin must be on the application classpath, and therefore is installed in `WEB-INF/lib`.
On the other hand, a Plugins2 plugin **must not** be on the standard classpath. They are installed in a special subfolder of the JIRA Home directory - `<jira-home>/plugins/installed-plugins/`.

Dependency Injection

The Container

JIRA uses Pico Container to manage Dependency Injection in its core classes and in Plugins1 classes.

On the other hand, Dependency Injection in Plugins2 plugins is not managed directly from JIRA, it is done in the Plugin Framework.
The Plugin Framework uses the Spring Framework for Dependency Injection. This will normally not affect the development of plugins, however there can be some subtle differences.
Of particular note is the case when a class has multiple constructors; the constructor chosen by Pico and Spring can be different.

Also, JIRA does not make all of its internal components available to the Plugin Framework. Some are considered unsuitable for plugin developers to use as they really should only be used by core systems.
This means there are some components that a Plugins1 plugin can get injected, that Plugins2 plugins cannot get injected.

Components

Components in JIRA can considered as the "services" in a Service Oriented Architecture. They are the Dependency Objects that can be Dependency Injected into other objects.

JIRA allows plugin developers to create new components that can then be injected into other objects used in plugins.
The way that plugin Components work is rather different depending on whether the Component lives in a Plugins1 or Plugins2 plugin.

Plugins1 Components

If a Plugins1 plugin declares a component, then that component is added to JIRA's core dependency injection container, and will be available as a dependency to any other plugin.
In fact, it is even possible to create a component to replace existing core components, although this is not considered a good idea - it is difficult, error-prone, and can't be guaranteed to always work.

Plugins2 Components

If a Plugins2 plugin declares a component, then by default this component is "private". Other classes in this plugin will be able to get the component injected in them, but other plugins will not.
The developer can declare the component as public, and then the component will be available to other Plugins2 plugins if they explicitly import that component.

Java packages

OSGi exports and imports dependencies based on Java packages. Only one ClassLoader can export classes from any given package.
Under Plugins2 this means it is even more important to not duplicate package names of core JIRA classes, or other plugins.

Of particular interest is the Webwork plugin module.
In JIRA v3.13 and earlier, most Plugin developers probably followed the example in the documentation that showed an Action class in the `com.atlassian.jira.web.action` package.
This meant they could declare a Webwork module with a "simple" class name. This is anyway a bad idea as it allows for possible name-space clashes. Furthermore, it will simply not work under Plugins2.
A plugin developer must create an action that lives in a unique package, and include the fully qualified class name of the action in the configuration file.
eg:

```
<webwork1 key="qquserissue" name="Quick Create User Issue" class="java.lang.Object">
    <actions>
        <action name="com.atlassian.jira.toolkit.action.QuickCreateUserIssueAction"
alias="QuickCreateUserIssue">
            <view name="createuserissue">/templates/quickcreateuser.vm</view>
        </action>
    </actions>
</webwork1>
```

REST Plugin Module Type

The REST plugin module is available only for OSGi-based plugins in JIRA 4.0 and above.

The REST plugin module allows plugin developers to create their own REST API for JIRA.

This module type is shared with other Atlassian products. See the common REST Plugin Module documentation for details.

Understanding how JIRA works

Once you start building your own plugins, it is likely that you'll need to call on JIRA code to accomplish certain tasks; for example, to retreive a list of users, make workflow changes or add new data to issues. We've compiled some resources about how JIRA works under the hood to help you know how to access that functionality.

PicoContainer and Dependency Injection

JIRA uses PicoContainer to manage object creation throughout the system. It is important to understand how dependency injection works before trying to call JIRA functionality from your plugin. Here is a brief introduction to PicoContainer and JIRA.

Database

It may be useful to understand how JIRA interacts with the database.

You should try not to manipulate JIRA's database directly, if you can avoid doing so.

Working with Issues and Fields

There are several docs that explain how to retreive and manipulate issues and fields.

- Creating and Editing an Issue
- How to search in a plugin
- Retrieving issue's links
- Working with Custom Fields
- JiraCreateSearch
- Issue Properties
- JiraIssueChangeHistory

API Docs

You can always looking things up in the API documentation..

Customising JIRA code

When customising JIRA, it is sometimes necessary to make code modifications. Most classes in JIRA conform to an interface (eg. the Webwork action classes, and *Manager classes), so it is possible to write your own implementation of JIRA interfaces and use yours instead of the default. This page describes the basics of how to plug modified classes into JIRA with minimal pain.

- Picocontainer
  - Non-managed classes
  - Register new Picocontainer-managed classes
- Overriding components in JIRA with an extension pico-container

Picocontainer

JIRA uses Picocontainer as a central object factory. Picocontainer is responsible for instantiating objects and resolving their constructor dependencies. This greatly simplifies code, in that any Picocontainer-instantiated object (eg. a Webwork action) can obtain an instance of another (eg. a Manager class) simply by requesting one in its constructor. PicoContainer will ensure each object required in the constructor is passed in (aka dependency injection). Eg. the ViewIssue action:

ViewIssue.java

Non-managed classes

Classes not managed by Picocontainer (eg. workflow conditions / functions, Services and Listeners, or JSP scriptlets) can still get pico-instantiated objects statically using static methods on ComponentManager. For example:

Register new Picocontainer-managed classes

Picocontainer-managed classes need to be registered with Picocontainer. This happens automatically for Webwork actions, but other classes need to be registered manually. This is done in ComponentRegistrar's registerComponents() method:

ComponentManager.java

Components can either by **INTERNAL** meaning that they will be available only to JIRA itself or **PROVIDED** in which case they will also be available to plugins2 plugins.

Components are generally only registered in the ComponentRegistrar, if they are required in JIRA internally. Plugin writers who wish to write to write their own components that can be injected in their plugin's classes should use the component plugin module .

If you wanted to register your overridden version of a pico-registered class, you could just register yours instead of the default in ComponentRegistrar above.

Overriding components in JIRA with an extension pico-container

Please note that this is deprecated and unsupported from JIRA 4.3 onwards

Sometimes it may be necessary for a plugin writer to override a component that JIRA ships with to provide some custom behaviour. You can do this by providing an extension pico container via a jira-application.properties property. In jira-application.properties, register an *extension container provider*:

```
jira.extension.container.provider = com.mycompany.jira.MyContainerProvider
```

In this class, you can register your own implementations of interfaces, which will be used in preference to the defaults in ComponentManager:

MyContainerProvider.java

```
package com.mycompany.jira;

import org.picocontainer.PicoContainer;
import org.picocontainer.defaults.DefaultPicoContainer;
import com.atlassian.jira.config.component.ProfilingComponentAdapterFactory;
import com.atlassian.jira.web.action.issue.BugAssociatorPrefs;
import com.atlassian.jira.security.PermissionManager;
import com.atlassian.jira.permission.PermissionSchemeManager;

import com.mycompany.jira.MyBugAssociatorPrefs;
import com.mycompany.jira.MyPermissionManager;
import com.mycompany.jira.MyPermissionSchemeManager;

public class MyContainerProvider implements ContainerProvider
{
    private DefaultPicoContainer container;

    public PicoContainer getContainer(PicoContainer parent)
    {
        if (container == null)
            buildContainer(parent);
        return container;
    }

    private void buildContainer(PicoContainer parent)
    {
        this.container = new DefaultPicoContainer(new ProfilingComponentAdapterFactory(), parent);
        container.registerComponentImplementation(BugAssociatorPrefs.class,
MyBugAssociatorPrefs.class);
        container.registerComponentImplementation(PermissionManager.class,
MyPermissionManager.class);
        container.registerComponentImplementation(PermissionSchemeManager.class,
MyPermissionSchemeManager.class);
    }
}
```

Here we have registered our own implementations of three classes, after delegating to the default (so ours will take precedence). You can now keep MyContainerProvider and your modified com.mycompany.jira.* classes in their own jar, which can be dropped into any JIRA instance to customize it to your needs.

Database Schema

Direct database queries are not recommended in JIRA. Instead, we recommend adding or modifying data via Jelly Tags or JIRA RPC Services. Check out the Command Line Interface and Python CLI for existing remote scripting tools. If you absolutely must modify data, always back up your data before performing any modification to the database.

Try adding SQL Logging for a great way to watch JIRA database queries in action.

Help contribute to our examples at Example SQL queries for JIRA.

JIRA uses Entity Engine module of the OfBiz suite to communicate with the database. You can learn more about the Entity Engine by reading its online documentation.

The database schema is described in the `entitymodel.xml` found in the `WEB-INF/classes/entitydefs` directory under the JIRA web application. The `entitymodel.xml` file has an XML definition of all JIRA's database tables, table columns and their data type. Some of the relationships between tables also appear in the file.

If you are using JIRA's API you will notice that a lot of code deals with `GenericValue` objects. The `GenericValue` is an OfBiz entity engine object. Each GenericValue object represents a record in the database.

To get a value of a field from a GenericValue you will need to use the relevant getter method for the field's type. For example:

```
GenericValue project = ...
String name = project.getString("name");
Long id = project.getLong("id");
```

The list of valid fields for each entity can be obtained by looking the entity's definition in the `WEB-INF/classes/entitydefs/entitymodel.xml` file. For the above example, one needs to look at the "Project" entity.

Relationships between tables

Some of the relationships between JIRA's tables in the database are documented below:

- Issue Fields
  - Simple fields
  - User details
  - Components and versions
  - Issue links
- Custom fields
  - Custom field configuration options
  - Custom field configuration default value
  - Custom field configuration schemes
  - Custom field configuration scopes
- Change History
- Work logs
- Users and Groups
- Issue status and workflow
- Issue status
- Issue workflow step
- How status and step relate
- Summary
  - Example SQLs

Issue Fields

This page shows how to examine each of a JIRA issue's fields via SQL. We will use JRA-3166 as a sample issue in our queries.

Simple fields

Most fields in JIRA are kept in the `jiraissue` table:

```
mysql> desc jiraissue;
+----------------------+---------------+------+-----+---------+-------+
| Field                | Type          | Null | Key | Default | Extra |
+----------------------+---------------+------+-----+---------+-------+
| ID                   | decimal(18,0) | NO   | PRI |         |       |
| pkey                 | varchar(255)  | YES  | MUL | NULL    |       |
| PROJECT              | decimal(18,0) | YES  | MUL | NULL    |       |
| REPORTER             | varchar(255)  | YES  |     | NULL    |       |
| ASSIGNEE             | varchar(255)  | YES  | MUL | NULL    |       |
| issuetype            | varchar(255)  | YES  |     | NULL    |       |
| SUMMARY              | varchar(255)  | YES  |     | NULL    |       |
| DESCRIPTION          | longtext      | YES  |     | NULL    |       |
| ENVIRONMENT          | longtext      | YES  |     | NULL    |       |
| PRIORITY             | varchar(255)  | YES  |     | NULL    |       |
| RESOLUTION           | varchar(255)  | YES  |     | NULL    |       |
| issuestatus          | varchar(255)  | YES  |     | NULL    |       |
| CREATED              | datetime      | YES  |     | NULL    |       |
| UPDATED              | datetime      | YES  |     | NULL    |       |
| DUEDATE              | datetime      | YES  |     | NULL    |       |
| VOTES                | decimal(18,0) | YES  |     | NULL    |       |
| TIMEORIGINALESTIMATE | decimal(18,0) | YES  |     | NULL    |       |
| TIMEESTIMATE         | decimal(18,0) | YES  |     | NULL    |       |
| TIMESPENT            | decimal(18,0) | YES  |     | NULL    |       |
| WORKFLOW_ID          | decimal(18,0) | YES  |     | NULL    |       |
| SECURITY             | decimal(18,0) | YES  |     | NULL    |       |
| FIXFOR               | decimal(18,0) | YES  |     | NULL    |       |
| COMPONENT            | decimal(18,0) | YES  |     | NULL    |       |
+----------------------+---------------+------+-----+---------+-------+
```

They can be retrieved with a regular select:

```
mysql> select id, pkey, project, reporter, assignee, issuetype, summary from jiraissue where
pkey='JRA-3166';
+-------+----------+---------+-----------+----------+-----------+--------------------------------+ |
id    | pkey     | project | reporter  | assignee | issuetype | summary                        |
+-------+----------+---------+-----------+----------+-----------+--------------------------------+ |
16550 | JRA-3166 |   10240 | mvleeuwen | NULL     | 2         | Database consistency check tool |
+-------+----------+---------+-----------+----------+-----------+--------------------------------+
```

User details

Say we wish to find out the email address and other details about our reporter, `mvleeuwen`. First we find this user's ID:

```
mysql> select id from userbase where username='mvleeuwen';
+-------+
| id    |
+-------+
| 13841 |
+-------+
```

Then use it to look up 'properties' of this userbase record (stored in propertysets. Each property has a record in the `propertyentry` table specifying its name and type, and a record in one of `propertystring`, `propertydecimal`, `propertydate`, `propertytext`, `propertydata` or `propertynumber`, depending on the type.

```

mysql> desc propertyentry;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| ID           | decimal(18,0) | NO   | PRI |         |       |
| ENTITY_NAME  | varchar(255)  | YES  |     | NULL    |       |
| ENTITY_ID    | decimal(18,0) | YES  | MUL | NULL    |       |
| PROPERTY_KEY | varchar(255)  | YES  |     | NULL    |       |
| propertytype | decimal(9,0)  | YES  |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+

mysql> select * from propertyentry where ENTITY_NAME='OSUser' and ENTITY_ID=(select id from
userbase where username='mvleeuwen');
+-------+-------------+-----------+--------------+--------------+
| ID    | ENTITY_NAME | ENTITY_ID | PROPERTY_KEY | propertytype |
+-------+-------------+-----------+--------------+--------------+
| 18352 | OSUser      |     13841 | email        |            5 |
| 18353 | OSUser      |     13841 | fullName     |            5 |
+-------+-------------+-----------+--------------+--------------+
```

So `email` and `fullName` are of type 5. which means the `propertystring` table. Here is the list of `propertytype` to table mappings:

propertyentry.propertytype value	Table value is stored in	Used for
1	propertynumber	Boolean values, eg. user preferences
5	propertystring	Most fields, eg. full names, email addresses
6	propertytext	Large blocks of text, eg. the introduction text, HTML portletconfigurations
2	propertydecimal (int)	Unused in JIRA, but used by Bamboo
3	propertydecimal (long)	Unused in JIRA
7	propertydate	Unused in JIRA
10	propertydata	Unused in JIRA

So the `email` and `fullName` properties are strings, and so can be found in the `propertystring` table:

```
mysql> select * from propertystring where id in (18352, 18353);
+-------+--------------------+
| ID    | propertyvalue      |
+-------+--------------------+
| 18352 | lemval@zonnet.nl   |
| 18353 | Michael van Leeuwen |
+-------+--------------------+
```

Components and versions

Since each issue can have multiple components/versions, there is a join table between `jiraissue` and `version/component` tables called `nodeassociation`:

```
mysql> desc nodeassociation;
+--------------------+---------------+------+-----+---------+-------+
| Field              | Type          | Null | Key | Default | Extra |
+--------------------+---------------+------+-----+---------+-------+
| SOURCE_NODE_ID     | decimal(18,0) | NO   | PRI |         |       |
| SOURCE_NODE_ENTITY | varchar(60)   | NO   | PRI |         |       |
| SINK_NODE_ID       | decimal(18,0) | NO   | PRI |         |       |
| SINK_NODE_ENTITY   | varchar(60)   | NO   | PRI |         |       |
| ASSOCIATION_TYPE   | varchar(60)   | NO   | PRI |         |       |
| SEQUENCE           | decimal(9,0)  | YES  |     | NULL    |       |
+--------------------+---------------+------+-----+---------+-------+

mysql> select distinct SOURCE_NODE_ENTITY from nodeassociation;
+--------------------+
| SOURCE_NODE_ENTITY |
+--------------------+
| Issue              |
| Project            |
+--------------------+

mysql> select distinct SINK_NODE_ENTITY from nodeassociation;
+-----------------------+
| SINK_NODE_ENTITY      |
+-----------------------+
| IssueSecurityScheme   |
| PermissionScheme      |
| IssueTypeScreenScheme |
| NotificationScheme    |
| ProjectCategory       |
| FieldLayoutScheme     |
| Component             |
| Version               |
+-----------------------+

mysql> select distinct ASSOCIATION_TYPE from nodeassociation;
+------------------+
| ASSOCIATION_TYPE |
+------------------+
| IssueVersion     |
| IssueFixVersion  |
| IssueComponent   |
| ProjectScheme    |
| ProjectCategory  |
+------------------+
```

So to get fix-for versions of an issue, run:

```
mysql> select * from projectversion where id in (
    select SINK_NODE_ID from nodeassociation where ASSOCIATION_TYPE='IssueFixVersion' and
SOURCE_NODE_ID=(
        select id from jiraissue where pkey='JRA-5351')
    );
+-------+---------+-------+-------------+----------+----------+----------+------+-------------+
| ID    | PROJECT | vname | DESCRIPTION | SEQUENCE | RELEASED | ARCHIVED | URL  | RELEASEDATE |
+-------+---------+-------+-------------+----------+----------+----------+------+-------------+
| 11614 |   10240 | 3.6   | NULL        |      131 | NULL     | NULL     | NULL | NULL        |
+-------+---------+-------+-------------+----------+----------+----------+------+-------------+
```

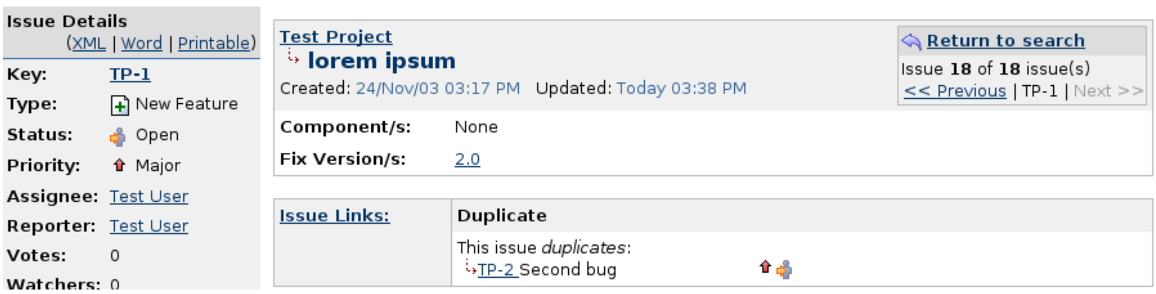
Similarly with affects versions:

```
mysql> select * from projectversion where id in (
    select SINK_NODE_ID from nodeassociation where ASSOCIATION_TYPE='IssueVersion' and
SOURCE_NODE_ID=(
        select id from jiraissue where pkey='JRA-5351')
    );
+-------+---------+---------------------+-------------+----------+----------+----------+------+------
ID    | PROJECT | vname               | DESCRIPTION | SEQUENCE | RELEASED | ARCHIVED | URL  |
RELEASEDATE         |
+-------+---------+---------------------+-------------+----------+----------+----------+------+------
10931 |   10240 |  3.0.3 Professional | NULL        |       73 | true     | NULL     | NULL |
2004-11-19 00:00:00 |
| 10930 |   10240 |  3.0.3 Standard     | NULL        |       72 | true     | NULL     | NULL |
2004-11-19 00:00:00 |
| 10932 |   10240 |  3.0.3 Enterprise   | NULL        |       74 | true     | NULL     | NULL |
2004-11-19 00:00:00 |
+-------+---------+---------------------+-------------+----------+----------+----------+------+------
```

and components:

```
mysql> select * from component where id in (
    select SINK_NODE_ID from nodeassociation where ASSOCIATION_TYPE='IssueComponent' and
SOURCE_NODE_ID=(
        select id from jiraissue where pkey='JRA-5351')
    );
+-------+---------+---------------+-------------+------+------+--------------+
| ID    | PROJECT | cname         | description | URL  | LEAD | ASSIGNEETYPE |
+-------+---------+---------------+-------------+------+------+--------------+
| 10126 |   10240 | Web interface | NULL        | NULL | NULL |         NULL |
+-------+---------+---------------+-------------+------+------+--------------+
```

Issue links



JIRA issue links are stored in the `issuelink` table, which simply links the IDs of two issues together, and records the link type:

```
mysql> desc issuelink;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| ID          | decimal(18,0) | NO   | PRI |         |       |
| LINKTYPE    | decimal(18,0) | YES  | MUL | NULL    |       |
| SOURCE      | decimal(18,0) | YES  | MUL | NULL    |       |
| DESTINATION | decimal(18,0) | YES  | MUL | NULL    |       |
| SEQUENCE    | decimal(18,0) | YES  |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

For instance, to list all links between TP-1 and TP-2:

Link types are defined in `issuelinktype`. This query prints all links in the system with their type:

Subtasks

As shown in the last query, JIRA records the issue-subtask relation as a link. The "subtask" link type is hidden in the user interface (indicated by the 'pstyle' value below), but visible in the database:

This means it is possible to convert an issue to a subtask, or vice-versa, by tweaking `issuelink` records.

Custom fields have their own set of tables. For details, see Custom fields

Custom fields

Custom fields defined in the system are stored in the `customfield` table, and instances of custom fields are stored in `customfieldvalue` :

```
mysql> desc customfieldvalue;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| ID          | decimal(18,0) | NO   | PRI |         |       |
| ISSUE       | decimal(18,0) | YES  | MUL | NULL    |       |
| CUSTOMFIELD | decimal(18,0) | YES  |     | NULL    |       |
| PARENTKEY   | varchar(255)  | YES  |     | NULL    |       |
| STRINGVALUE | varchar(255)  | YES  |     | NULL    |       |
| NUMBERVALUE | decimal(18,6) | YES  |     | NULL    |       |
| TEXTVALUE   | longtext      | YES  |     | NULL    |       |
| DATEVALUE   | datetime      | YES  |     | NULL    |       |
| VALUETYPE   | varchar(255)  | YES  |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
```

We can print all custom field values for an issue with:

```
mysql> select * from customfieldvalue where issue=(select id from jiraissue where
pkey='JRA-5448');
+-------+-------+-------------+-----------+-------------+-------------+-----------+------------------
ID    | ISSUE | CUSTOMFIELD | PARENTKEY | STRINGVALUE | NUMBERVALUE | TEXTVALUE | DATEVALUE
| VALUETYPE |
+-------+-------+-------------+-----------+-------------+-------------+-----------+------------------
23276 | 22160 |       10190 | NULL      | NULL        |        NULL | NULL      | 2004-12-07
17:25:58 | NULL      |
+-------+-------+-------------+-----------+-------------+-------------+-----------+------------------
```

and we can see what type of custom field this (10190) is with:

```
mysql> select * from customfield where id=10190;
+-------+-------------------------------------------------+----------------------------------------
ID     | CUSTOMFIELDTYPEKEY                              | CUSTOMFIELDSEARCHERKEY
| cfname           | DESCRIPTION | defaultvalue | FIELDTYPE | PROJECT | ISSUETYPE |
+-------+-------------------------------------------------+----------------------------------------
10190 | com.atlassian.jira.ext.charting:resolutiondate |
com.atlassian.jira.ext.charting:resolutiondatesearcher | Resolution Date | NULL        | NULL
|      NULL |     NULL | NULL      |
+-------+-------------------------------------------------+----------------------------------------
```

(ie. it's a "Resolution Date").

This query identifies a particular custom field value in a particular issue:

```
mysql> select stringvalue from customfieldvalue where customfield=(select id from customfield
where cfname='Urgency') and issue=(select id from jiraissue where pkey='FOR-845');
+-------------+
| stringvalue |
+-------------+
| Low         |
+-------------+
1 row in set (0.33 sec)
```

If the custom field has multiple values (multi-select or multi-user picker), each issue can have multiple `customfieldvalue` rows:

```
mysql> select * from customfieldvalue where customfield=(select ID from customfield where
cfname='MultiUser');
+-------+-------+-------------+-----------+-------------+-------------+-----------+-----------+------
ID    | ISSUE | CUSTOMFIELD | PARENTKEY | STRINGVALUE | NUMBERVALUE | TEXTVALUE | DATEVALUE |
VALUETYPE |
+-------+-------+-------------+-----------+-------------+-------------+-----------+-----------+------
10002 | 10060 |       10000 | NULL      | bob         |        NULL | NULL      | NULL      | NULL
|
| 10003 | 10060 |       10000 | NULL      | jeff        |        NULL | NULL      | NULL      |
NULL      |
+-------+-------+-------------+-----------+-------------+-------------+-----------+-----------+------
rows in set (0.00 sec)
```

Here issue 10060 has two users, `bob` and `jeff` in its MultiUser custom field.

Custom field configuration options

The option sets (1, 2, 3 and A, B, C) are stored in the **customfieldoption** table:

mysql> select * from customfieldoption where customfieldconfig=10031;

ID	CUSTOMFIELD	CUSTOMFIELDCONFIG	PARENTOPTIONID	SEQUENCE	customvalue	optiontype
10000	10001	10031	NULL	0	1	NULL
10001	10001	10031	NULL	1	2	NULL
10002	10001	10031	NULL	2	3	NULL

mysql> select * from customfieldoption where customfieldconfig=10032;

ID	CUSTOMFIELD	CUSTOMFIELDCONFIG	PARENTOPTIONID	SEQUENCE	customvalue	optiontype
10003	10001	10032	NULL	0	A	NULL
10004	10001	10032	NULL	1	B	NULL
10005	10001	10032	NULL	2	C	NULL

Custom field configuration default value

The custom field default value is stored in the **genericconfiguration** table. Since this table must store a value for any custom field type (cascading selects, multi-selects, etc) the value is encoded as XML.

If we were to set a default value of "2" for our "Default Configuration Scheme for SelectCF", it would be recorded as:

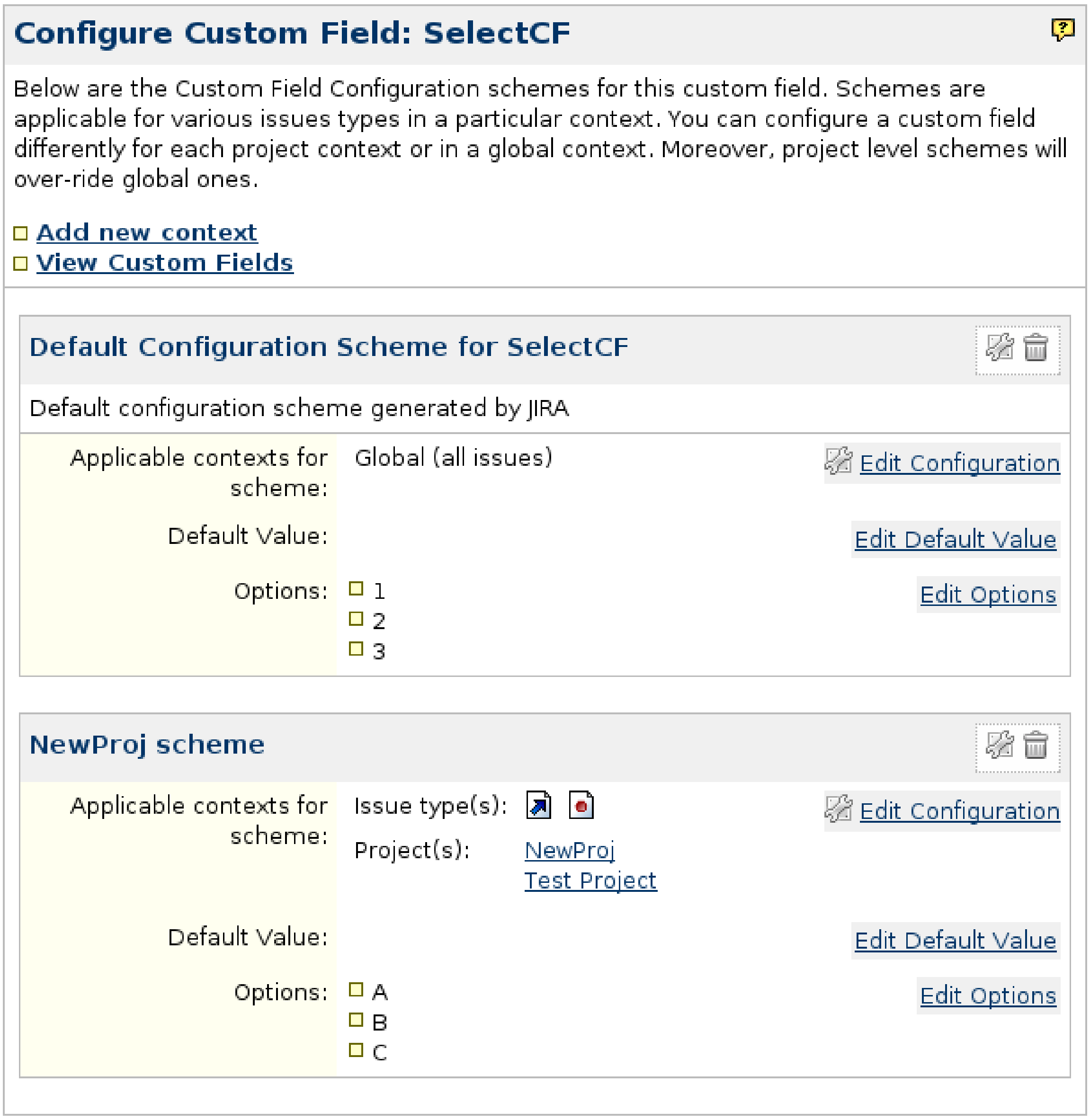
mysql> select * from genericconfiguration where ID=10031;

ID	DATATYPE	DATAKEY	XMLVALUE
10031	DefaultValue	10030	<string>2</string>

Custom field configuration schemes

JIRA custom fields can have different default values and possible values for each project and/or issue type. This is set up by clicking 'Configure' in the custom field definition.

For instance, in this screenshot the "SelectCF" select-list field will have values 1, 2, 3 for all projects except bugs and improvements in "NewProj" and"Test Project", which will have values A, B and C:



Custom field configuration scopes

In the database, these custom field configuration schemes are stored in the **fieldconfigscheme** table

mysql> select * from fieldconfigscheme where id in (10031,10032);

ID	configname	DESCRIPTION	FIELDID	CUSTOMFIELD
10031	Default Configuration Scheme for SelectCF	Default configuration scheme generated by JIRA	customfield_10001	NULL
10032	NewProj scheme		customfield_10001	NULL

The **projects in scope** for each of these schemes is listed as records (one per project) in the **configurationcontext** table:

mysql> select * from configurationcontext where fieldconfigscheme=10031;

ID	PROJECTCATEGORY	PROJECT	customfield	FIELDCONFIGSCHEME
10053	NULL	NULL	customfield_10001	10031

(Here showing that that the "Default Configuration Scheme for SelectCF" applies to all projects)

mysql> select * from configurationcontext where fieldconfigscheme=10032;

ID	PROJECTCATEGORY	PROJECT	customfield	FIELDCONFIGSCHEME
10054	NULL	10000	customfield_10001	10032
10055	NULL	10010	customfield_10001	10032

(Here showing that "NewProj scheme" is restricted to projects with ids 10000 and 10010 ("Test Project" and "NewProj")).

Finally, the **issue types in scope** for each scheme is listed as records (one per issue type) in the **fieldconfigschemeissuetype** table:

mysql> select * from fieldconfigschemeissuetype where fieldconfigscheme = 10031;

ID	ISSUETYPE	FIELDCONFIGSCHEME	FIELDCONFIGURATION
10051	NULL	10031	10031

(Here showing that "Default Configuration Scheme for SelectCF" is not limited to any issue types)

mysql> select * from fieldconfigschemeissuetype where fieldconfigscheme = 10032;

ID	ISSUETYPE	FIELDCONFIGSCHEME	FIELDCONFIGURATION
10052	1	10032	10032
10053	4	10032	10032

(Here showing that "Newproj scheme" is limited to issue types with IDs 1 and 4).

Note that there should *always be a record* in `configurationcontext` and `fieldconfigschemeissuetype` for each issue type configuration scheme. If the scheme isn't restricted to any projects or issue types, the `project` and `issuetype` columns of the respective tables should be `NULL`. Incidentally JIRA has/had a bug where it didn't leave an entry when deleting an issue type (JRA-10461), so if you are making changes manually, don't make the same mistake.

Change History

Change History Database Tables

JIRA stores the Change History records of each issue in the `changegroup` and `changeitem` tables.

Each change to the issue triggered by a user inserts one record into the `changegroup` table. Each changegroup table record describes which issue it refers to, the time of the change and the user who has performed the change (null for a non-logged in user).

Each changegroup record refers to one or many `changeitem` records. Each `changeitem` record describes the issue field that has been updated and its old and new values. The `OLDVALUE` column records the id of the changed enity (e.g. status) while `OLDSTRING` records the name fo the entity, so that if the entity is removed from the system the change history for an issue can still be displayed. The `NEWVALUE` and `NEWSTRING` columns are similar in nature.

Inserting change history records

When writing tools that import data into JIRA, it is sometimes required to import change history. To do this please first insert a record into the `changegroup` table with a valid issue id:

The issues are stored in the `jiraissue` table:

And then insert the required number of `changeitem` records referencing the inserted `changegroup` record:

The SEQUENCE_VALUE_ITEM table

The SEQUENCE_VALUE_ITEM table is used to record, in a database independent way, the maximum ID used in each of JIRA's database tables:

Actually, Ofbiz allocates IDs in batches of 10, so the SEQ_ID is the next available ID rounded up to the nearest 10. So you might have:

Where 10310 is the nearest 10 above 10303.

The `SEQ_NAME` column refers to the database table name defined in `WEB-INF/classes/entitydefs/entitymodel.xml` (eg. "Action" is `jiraaction`).

Manually inserting records

The implication of this is that if you want to manually insert records into JIRA database tables, you **must update SEQUENCE_VALUE_ITEM yourself**. Set the relevant rows' SEQ_ID values to a value greater than the actual maximum ID in the table. You will then need to restart JIRA to ensure all database caches are reset.

Retrieving Change History using JIRA's API

The best way to retrieve change history entries is:

You can declare dependency on JiraAuthenticationContext and ActionManager in the constructor of your plugin as described in PicoContainer and JIRA.

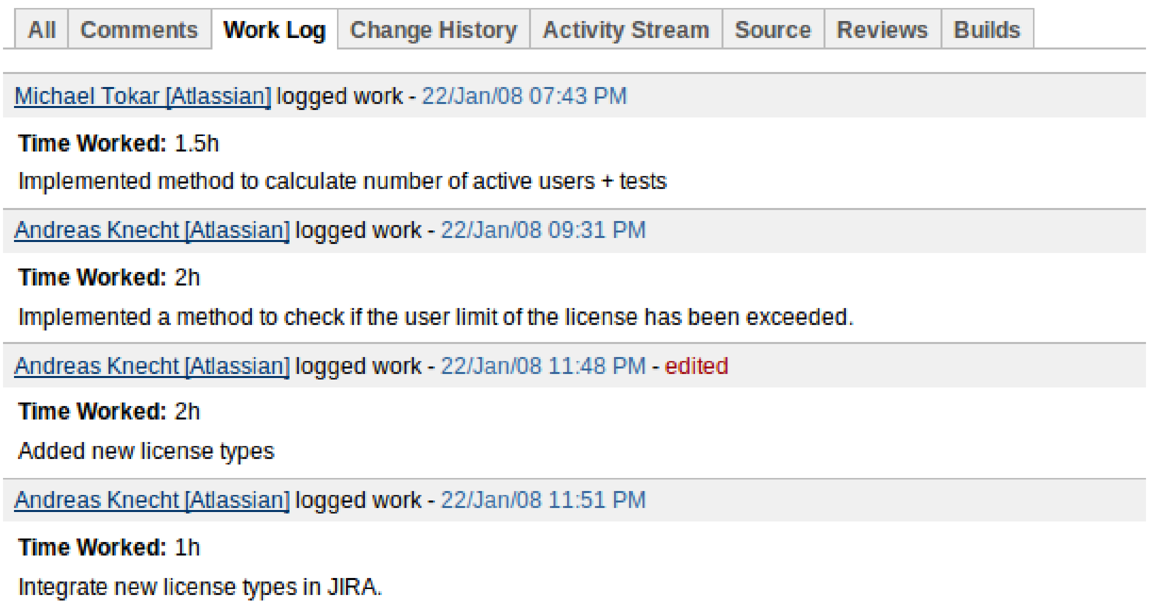
The getChangeHistory method returns `ChangeHistory` objects on which you can call the getChangeItems() method. This returns a List of GenericValue objects, each one representing an issue field update. To check the field that was updated do:

String fieldName = changeItem.getString("field")

GenericValues are described in Database Schema.

Work logs

Work log entries are kept in the `worklog` table. For instance, some worklogs in JIRA (from JRA-10393):



are stored in `worklog` table as:

id	issueid	author	grouplevel	rolelevel	worklogbody	created	updateauthor	upda

83332	38315	mtokar			Implemented method to calculate number of active users + tests	2008-01-22 19:44:04.867-06	mtokar	2008- 19:44
83333	38315	andreask@atlassian.com			Implemented a method to check if the user limit of the license has been exceeded.	2008-01-22 21:33:18.23-06	andreask@atlassian.com	2008- 21:33
83334	38315	andreask@atlassian.com			Added new license types	2008-01-22 23:49:27.794-06	andreask@atlassian.com	2008- 23:51
83335	38315	andreask@atlassian.com			Integrate new license types in JIRA.	2008-01-22 23:51:23.799-06	andreask@atlassian.com	200

where:

- `issueid` maps to `jiraissue.id`
- `timeworked` is in seconds

Whenever a worklog entry is added, the `jiraissue.timespent` and `jiraissue.timeestimate` values are incremented and decremented respectively.

Users and Groups

User and Group Tables

JIRA 4.3 and higher uses "Embedded Crowd" as its user management framework.
For the old User and Group tables see Database Schema v4.2.

Users

Users are stored in the **CWD_USER** table:

COLUMN_NAME	DATA_TYPE	COMMENTS
ID	NUMBER(18,0)	
DIRECTORY_ID	NUMBER(18,0)	Links to CWD_DIRECTORY
USER_NAME	VARCHAR2(255)	
LOWER_USER_NAME	VARCHAR2(255)	used for case-insensitive search
ACTIVE	NUMBER(9,0)	
CREATED_DATE	DATE	
UPDATED_DATE	DATE	
FIRST_NAME	VARCHAR2(255)	Not used
LOWER_FIRST_NAME	VARCHAR2(255)	Not used
LAST_NAME	VARCHAR2(255)	Not used
LOWER_LAST_NAME	VARCHAR2(255)	Not used
DISPLAY_NAME	VARCHAR2(255)	
LOWER_DISPLAY_NAME	VARCHAR2(255)	
EMAIL_ADDRESS	VARCHAR2(255)	
LOWER_EMAIL_ADDRESS	VARCHAR2(255)	
CREDENTIAL	VARCHAR2(255)	

See also **CWD_USER_ATTRIBUTES** which stores arbitrary "Attributes" against the User.

Group Tables

The groups are stored in the **CWD_GROUP** table:

COLUMN_NAME	DATA_TYPE	COMMENTS
ID	NUMBER(18,0)	
GROUP_NAME	VARCHAR2(255)	
LOWER_GROUP_NAME	VARCHAR2(255)	used for case-insensitive search
ACTIVE	NUMBER(9,0)	
LOCAL	NUMBER(9,0)	
CREATED_DATE	DATE	
UPDATED_DATE	DATE	
DESCRIPTION	VARCHAR2(255)	
LOWER_DESCRIPTION	VARCHAR2(255)	
GROUP_TYPE	VARCHAR2(60)	
DIRECTORY_ID	NUMBER(18,0)	Links to CWD_DIRECTORY

See also **CWD_GROUP_ATTRIBUTES** which stores arbitrary "Attributes" against the Group.

Group Membership

The `CWD_MEMBERSHIP` table records which users belong to which groups.
Note that it is also used to store parent/child relationships for nested groups.

COLUMN_NAME	DATA_TYPE	COMMENTS
ID	NUMBER(18,0)	
PARENT_ID	NUMBER(18,0)	Parent Group
CHILD_ID	NUMBER(18,0)	User or nested Group ID
MEMBERSHIP_TYPE	VARCHAR2(60)	Indicates a Group-User membership or Group-Group membership
GROUP_TYPE	VARCHAR2(60)	not used
PARENT_NAME	VARCHAR2(255)	Parent Group
LOWER_PARENT_NAME	VARCHAR2(255)	used for case-insensitive search
CHILD_NAME	VARCHAR2(255)	User or child Group
LOWER_CHILD_NAME	VARCHAR2(255)	used for case-insensitive search
DIRECTORY_ID	NUMBER(18,0)	Note that this must match the DirectoryId for the Group and User

User Directories

JIRA can have multiple "User Directories".
The Directory Configuration is stored in CWD_DIRECTORY, CWD_DIRECTORY_ATTRIBUTE, and CWD_DIRECTORY_OPERATION.

Watches and Votes

Watches and votes are recorded in the **USERASSOCIATION** table:

COLUMN_NAME	DATA_TYPE	COMMENTS
SOURCE_NAME	VARCHAR2(60)	username
SINK_NODE_ID	NUMBER(18,0)	
SINK_NODE_ENTITY	VARCHAR2(60)	
ASSOCIATION_TYPE	VARCHAR2(60)	
SEQUENCE	NUMBER(9,0)	

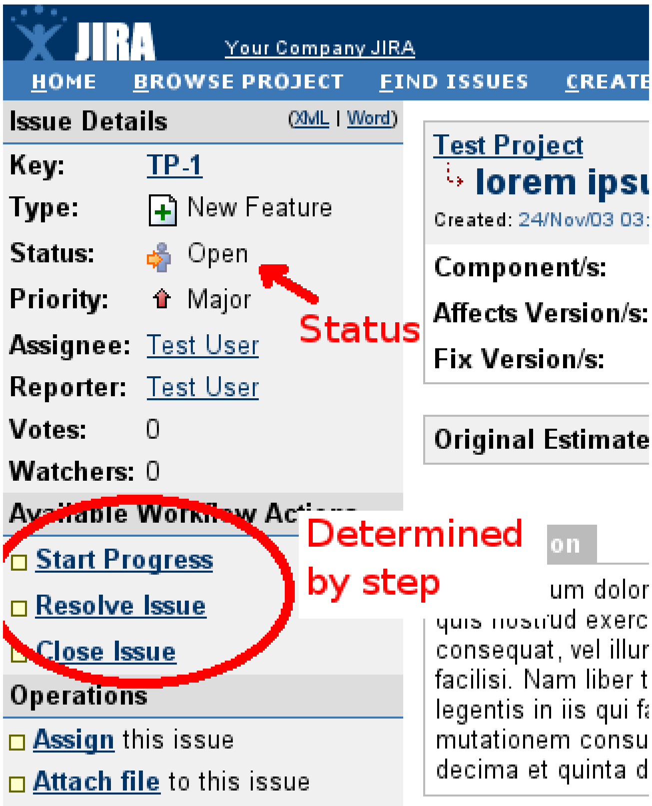
For example:

For example, here user 'asmith' is watching issue with id 108433.

Issue status and workflow

This page describes the database tables involved in issue workflow. It will be useful for people who wish to insert issues into the database manually, or diagnose/fix corrupted databases.
JIRA issues have both:

- a **status** (Open, Closed, In Progress etc).
- a **workflow step**, which governs which transitions are available



Issue status

In the database, the **status** (Open, Closed etc) is stored on the `jiraissue` table:

Issue workflow step

Originally JIRA issues only had a status. Then in version 2.0, *workflow* was added, so that transitions between statuses could be customized. An issue's workflow step is stored in new tables, referenced from `jiraissue` by the `workflow_id`:

The TP-1 issue's OS_WFENTRY row indicates that the issue uses the 'jira' (default, built-in) workflow.

The issue's OS_CURRENTSTEP row specifies the issue's *current step*. The only field really used is `STEP_ID`. This references a step definition in the workflow:

The workflow definition for the built-in 'jira' workflow can be seen in `atlassian-jira/WEB-INF/classes/jira-workflow.xml`

How status and step relate

An issue's status and workflow step are kept in synch:

Status and step are kept in synch is with a workflow post-function (UpdateIssueStatusFunction), which updates the status whenever the step changes.

If the step gets out of synch with the status, then incorrect (or no) workflow operations appear on the issue page. Eg. if OS_CURRENTSTEP.STEP_ID was 6 ("Closed") when jiraissue.issuestatus was 1 ("Open"), then the issue would have only one transition ("Reopen issue") which would break if anyone clicked on it.

Summary

- For each `jiraissue` row, there is a `OS_CURRENTSTEP` and `OS_WFENTRY` row.
- `OS_WFENTRY` specifies the applicable workflow. `OS_CURRENTSTEP` specifies the step in that workflow.
- The relations are:
  - jiraissue.WORKFLOW_ID == OS_WFENTRY.ID
  - jiraissue.WORKFLOW_ID == OS_CURRENTSTEP.ENTRY_ID

Example SQLs

Some examples of SQLs that can be run against the JIRA schema:
Example SQL queries for JIRA

Change History

Change History Database Tables

JIRA stores the Change History records of each issue in the `changegroup` and `changeitem` tables.

Each change to the issue triggered by a user inserts one record into the `changegroup` table. Each changegroup table record describes which issue it refers to, the time of the change and the user who has performed the change (null for a non-logged in user).

```
mysql> select * from changegroup;
+-------+---------+--------+---------------------+
| ID    | issueid | AUTHOR | CREATED             |
+-------+---------+--------+---------------------+
| 10000 |   10000 | admin  | 2005-06-09 15:16:39 |
| 10751 |   10000 | admin  | 2005-06-10 00:00:00 |
+-------+---------+--------+---------------------+
```

Each changegroup record refers to one or many `changeitem` records. Each `changeitem` record describes the issue field that has been updated and its old and new values. The `OLDVALUE` column records the id of the changed enity (e.g. status) while `OLDSTRING` records the name fo the entity, so that if the entity is removed from the system the change history for an issue can still be displayed. The `NEWVALUE` and `NEWSTRING` columns are similar in nature.

```
mysql> select * from changeitem;
+-------+---------+-----------+------------+----------+-----------+----------+-----------+
| ID    | groupid | FIELDTYPE | FIELD      | OLDVALUE | OLDSTRING | NEWVALUE | NEWSTRING |
+-------+---------+-----------+------------+----------+-----------+----------+-----------+
| 10000 |   10000 | jira      | status     | 1        | Open      | 6        | Closed    |
| 10001 |   10000 | jira      | resolution | NULL     | NULL      | 1        | Fixed     |
| 11404 |   10751 | jira      | status     | 1        | Open      | 6        | Closed    |
+-------+---------+-----------+------------+----------+-----------+----------+-----------+
```

Inserting change history records

When writing tools that import data into JIRA, it is sometimes required to import change history. To do this please first insert a record into the `changegroup` table with a valid issue id:

```
insert into changegroup values (20000,10000,'admin','2005-06-12');
```

The issues are stored in the `jiraissue` table:

```
mysql> select id, pkey from jiraissue;
+-------+-------+
| id    | pkey  |
+-------+-------+
| 10000 | TST-1 |
+-------+-------+
```

And then insert the required number of `changeitem` records referencing the inserted `changegroup` record:

```
insert into changeitem values (11000, 20000, 'jira','status','1','Open','6','Closed');
```

The SEQUENCE_VALUE_ITEM table

The SEQUENCE_VALUE_ITEM table is used to record, in a database independent way, the maximum ID used in each of JIRA's database tables:

```
mysql> select * from SEQUENCE_VALUE_ITEM;
+-----------------------------+--------+
| SEQ_NAME                    | SEQ_ID |
+-----------------------------+--------+
| Action                      |  10310 |
| ChangeGroup                 |  11050 |
| ChangeItem                  |  11320 |
| ColumnLayout                |  10040 |
| ColumnLayoutItem            |  10120 |
| Component                   |  10110 |
| ConfigurationContext        |  10170 |
| SchemeIssueSecurities       |  10040 |
...
```

Actually, Ofbiz allocates IDs in batches of 10, so the SEQ_ID is the next available ID rounded up to the nearest 10. So you might have:

```
mysql> select max(ID) from jiraaction;
+---------+
| max(ID) |
+---------+
|   10303 |
+---------+
1 row in set (0.04 sec)

mysql> select * from SEQUENCE_VALUE_ITEM where SEQ_NAME='Action';
+----------+--------+
| SEQ_NAME | SEQ_ID |
+----------+--------+
| Action   |  10310 |
+----------+--------+
1 row in set (0.01 sec)
```

Where 10310 is the nearest 10 above 10303.

The `SEQ_NAME` column refers to the database table name defined in `WEB-INF/classes/entitydefs/entitymodel.xml` (eg. "Action" is `jiraaction`).

Manually inserting records

The implication of this is that if you want to manually insert records into JIRA database tables, you **must update SEQUENCE_VALUE_ITEM yourself**. Set the relevant rows' SEQ_ID values to a value greater than the actual maximum ID in the table. You will then need to restart JIRA to ensure all database caches are reset.

Retrieving Change History using JIRA's API

The best way to retrieve change history entries is:

```
actionManager.getChangeHistory(getIssue(), authenticationContext.getUser());
```

You can declare dependency on JiraAuthenticationContext and ActionManager in the constructor of your plugin as described in PicoContainer and JIRA.

The getChangeHistory method returns `ChangeHistory` objects on which you can call the getChangeItems() method. This returns a List of GenericValue objects, each one representing an issue field update. To check the field that was updated do:

String fieldName = changeItem.getString("field")

GenericValues are described in Database Schema.

Configuration properties

There are some global JIRA configuration settings, such as:

- Search index path
- Attachments path
- Base URL
- Settings configured in Administration -> General Configuration
- License info

These are all stored in a propertyset on a virtual 'jira.properties' entity:

```
mysql> select * from propertyentry where ENTITY_NAME='jira.properties';
+-------+-----------------+-----------+-------------------------------------+--------------+
| ID    | ENTITY_NAME     | ENTITY_ID | PROPERTY_KEY                        | propertytype |
+-------+-----------------+-----------+-------------------------------------+--------------+
| 10001 | jira.properties |         1 | webwork.i18n.encoding               |            5 |
| 10000 | jira.properties |         1 | jira.i18n.language.index            |            5 |
| 10002 | jira.properties |         1 | jira.title                          |            5 |
| 10008 | jira.properties |         1 | jira.option.allowattachments        |            1 |
| 10003 | jira.properties |         1 | jira.baseurl                        |            5 |
| 10005 | jira.properties |         1 | jira.path.index                     |            5 |
| 10006 | jira.properties |         1 | jira.option.indexing                |            1 |
| 10007 | jira.properties |         1 | jira.path.attachments               |            5 |
| 10004 | jira.properties |         1 | jira.mode                           |            5 |
| 10011 | jira.properties |         1 | jira.path.backup                    |            5 |
| 10012 | jira.properties |         1 | License Message                     |            5 |
| 10013 | jira.properties |         1 | License Hash 1                      |            5 |
| 10018 | jira.properties |         1 | jira.option.user.externalmanagement |            1 |
| 10019 | jira.properties |         1 | jira.option.voting                  |            1 |
| 10016 | jira.properties |         1 | jira.setup                          |            5 |
| 10022 | jira.properties |         1 | jira.version.patched                |            5 |
| 10017 | jira.properties |         1 | jira.option.allowunassigned         |            1 |
| 10020 | jira.properties |         1 | jira.option.watching                |            1 |
| 10021 | jira.properties |         1 | jira.option.issuelinking            |            1 |
| 10023 | jira.properties |         1 | jira.option.cache.issues            |            1 |
| 10024 | jira.properties |         1 | jira.issue.desc.environment         |            5 |
| 10025 | jira.properties |         1 | jira.issue.desc.timetrack           |            5 |
| 10027 | jira.properties |         1 | jira.timetracking.hours.per.day     |            5 |
| 10028 | jira.properties |         1 | jira.issue.desc.original.timetrack  |            5 |
| 10050 | jira.properties |         1 | jira.option.allowsubtasks           |            1 |
| 10080 | jira.properties |         1 | jira.option.allowthumbnails         |            1 |
| 10101 | jira.properties |         1 | jira.constant.default.resolution    |            5 |
| 10026 | jira.properties |         1 | jira.timetracking.days.per.week     |            5 |
| 10100 | jira.properties |         1 | jira.scheme.default.issue.type      |            5 |
| 10120 | jira.properties |         1 | jira.option.emailvisible            |            5 |
| 10150 | jira.properties |         1 | jira.sid.key                        |            5 |
| 10161 | jira.properties |         1 | jira.trackback.exclude.pattern      |            5 |
| 10151 | jira.properties |         1 | jira.lf.edit.version                |            5 |
| 10160 | jira.properties |         1 | jira.comment.level.visibility.groups |           1 |
+-------+-----------------+-----------+-------------------------------------+--------------+
34 rows in set (0.02 sec)
```

The 'propertytype' column indicates which table stores the actual value for this property. 1 means 'propertynumber' and 5 means 'propertystring':

```
mysql> select * from propertyentry pe, propertynumber ps where pe.id=ps.id and
pe.ENTITY_NAME='jira.properties' and propertytype='1' ;
+-------+-----------------+-----------+-------------------------------------+--------------+-------+
ID     | ENTITY_NAME      | ENTITY_ID | PROPERTY_KEY                        | propertytype | ID
| propertyvalue |
+-------+-----------------+-----------+-------------------------------------+--------------+-------+
10006 | jira.properties |         1 | jira.option.indexing                |            1 | 10006
|             1 |
| 10008 | jira.properties |         1 | jira.option.allowattachments        |            1 |
10008 |             1 |
| 10018 | jira.properties |         1 | jira.option.user.externalmanagement  |            1 |
10018 |             0 |
| 10017 | jira.properties |         1 | jira.option.allowunassigned         |            1 |
10017 |             0 |
| 10019 | jira.properties |         1 | jira.option.voting                  |            1 |
10019 |             1 |
| 10020 | jira.properties |         1 | jira.option.watching                |            1 |
10020 |             1 |
| 10021 | jira.properties |         1 | jira.option.issuelinking            |            1 |
10021 |             1 |
| 10023 | jira.properties |         1 | jira.option.cache.issues            |            1 |
10023 |             0 |
| 10050 | jira.properties |         1 | jira.option.allowsubtasks           |            1 |
10050 |             1 |
| 10080 | jira.properties |         1 | jira.option.allowthumbnails         |            1 |
10080 |             1 |
| 10160 | jira.properties |         1 | jira.comment.level.visibility.groups |            1 |
10160 |             1 |
+-------+-----------------+-----------+-------------------------------------+--------------+-------+
rows in set (0.01 sec)
```

Here you can see that indexing is enabled (1), external user management off (0), subtasks enabled (1), etc.

```
mysql> select PROPERTY_KEY, propertyvalue
         from propertyentry pe, propertystring ps
         where pe.id=ps.id and pe.ENTITY_NAME='jira.properties' and propertytype='5';
+-------+-----------------+-----------+-------------------------+--------------+-------+-----------
ID     | ENTITY_NAME      | ENTITY_ID | PROPERTY_KEY            | propertytype | ID     |
propertyvalue                                    |
+-------+-----------------+-----------+-------------------------+--------------+-------+-----------
10004 | jira.properties |         1 | jira.mode               |            5 | 10004 | public
|
| 10000 | jira.properties |         1 | jira.i18n.language.index |            5 | 10000 | english
|
| 10001 | jira.properties |         1 | webwork.i18n.encoding    |            5 | 10001 | UTF-8
|
| 10002 | jira.properties |         1 | jira.title               |            5 | 10002 | Your
Company JIRA                                   |
| 10003 | jira.properties |         1 | jira.baseurl             |            5 | 10003 |
http://localhost:8080/jira                        |
| 10005 | jira.properties |         1 | jira.path.index          |            5 | 10005 |
/home/jturner/jira/cleandb/ent/3.7.2/index       |
| 10007 | jira.properties |         1 | jira.path.attachments    |            5 | 10007 |
/home/jturner/jira/cleandb/ent/3.7.2/attachments |
| 10011 | jira.properties |         1 | jira.path.backup         |            5 | 10011 |
/home/jturner/jirabackups
...
| 10022 | jira.properties |         1 | jira.version.patched            |            5 | 10022
| 186
...
mysql>
```

JIRA build versions and upgrading

One important property stored is the build number:

```
mysql> select * from propertyentry pe, propertystring ps where pe.id=ps.id and
pe.ENTITY_NAME='jira.properties' and pe.PROPERTY_KEY='jira.version.patched';
+-------+-----------------+-----------+---------------------+--------------+-------+---------------+
ID     | ENTITY_NAME      | ENTITY_ID | PROPERTY_KEY         | propertytype | ID     | propertyvalue
|
+-------+-----------------+-----------+---------------------+--------------+-------+---------------+
10022 | jira.properties |         1 | jira.version.patched |            5 | 10022 | 186
|
+-------+-----------------+-----------+---------------------+--------------+-------+---------------+
row in set (0.00 sec)
```

The build number corresponds to a JIRA version. In the footer of JIRA pages you'll see this build number after the version, eg. "Version: 3.7.2-#186".

The build number is mostly relevant when upgrading. JIRA will run "upgrade tasks" when it detects that the JIRA's data is from an older version, and it does this by comparing the build number in the database with its own.

When an upgrade task is successfully run, it is recorded in the upgradehistory table:

```
mysql> select * from upgradehistory;
+-------+-----------------------------------------------------------------+
| ID    | UPGRADECLASS                                                    |
+-------+-----------------------------------------------------------------+
| 10000 | com.atlassian.jira.upgrade.tasks.UpgradeTask1_2                 |
| 10001 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build10            |
| 10080 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build100           |
| 10081 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build101           |
| 10082 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build102           |
| 10085 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build105           |
| 10002 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build11            |
| 10083 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build103           |
| 10084 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build104           |
| 10101 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build133           |
....
| 10074 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build96            |
| 10010 | com.atlassian.jira.upgrade.tasks.enterprise.UpgradeTask_Build47 |
| 10040 | com.atlassian.jira.upgrade.tasks.enterprise.UpgradeTask_Build69 |
| 10071 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build93            |
| 10073 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build95            |
| 10075 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build98            |
| 10061 | com.atlassian.jira.upgrade.tasks.enterprise.UpgradeTask_Build84 |
| 10065 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build89            |
| 10140 | com.atlassian.jira.upgrade.tasks.UpgradeTask_Build186           |
+-------+-----------------------------------------------------------------+
52 rows in set (0.02 sec)
```

Custom fields

Custom fields defined in the system are stored in the `customfield` table, and instances of custom fields are stored in `customfieldvalue` :

```
mysql> desc customfieldvalue;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| ID          | decimal(18,0) | NO   | PRI |         |       |
| ISSUE       | decimal(18,0) | YES  | MUL | NULL    |       |
| CUSTOMFIELD | decimal(18,0) | YES  |     | NULL    |       |
| PARENTKEY   | varchar(255)  | YES  |     | NULL    |       |
| STRINGVALUE | varchar(255)  | YES  |     | NULL    |       |
| NUMBERVALUE | decimal(18,6) | YES  |     | NULL    |       |
| TEXTVALUE   | longtext      | YES  |     | NULL    |       |
| DATEVALUE   | datetime      | YES  |     | NULL    |       |
| VALUETYPE   | varchar(255)  | YES  |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
```

We can print all custom field values for an issue with:

```
mysql> select * from customfieldvalue where issue=(select id from jiraissue where
pkey='JRA-5448');
+-------+-------+-------------+-----------+-------------+-------------+-----------+------------------
ID     | ISSUE | CUSTOMFIELD | PARENTKEY | STRINGVALUE | NUMBERVALUE | TEXTVALUE | DATEVALUE
| VALUETYPE |
+-------+-------+-------------+-----------+-------------+-------------+-----------+------------------
23276 | 22160 |       10190 | NULL      | NULL        |        NULL | NULL      | 2004-12-07
17:25:58 | NULL      |
+-------+-------+-------------+-----------+-------------+-------------+-----------+------------------
```

and we can see what type of custom field this (10190) is with:

```
mysql> select * from customfield where id=10190;
+-------+-----------------------------------------------+-----------------------------------------
ID     | CUSTOMFIELDTYPEKEY                             | CUSTOMFIELDSEARCHERKEY
| cfname          | DESCRIPTION | defaultvalue | FIELDTYPE | PROJECT | ISSUETYPE |
+-------+-----------------------------------------------+-----------------------------------------
10190 | com.atlassian.jira.ext.charting:resolutiondate |
com.atlassian.jira.ext.charting:resolutiondatesearcher | Resolution Date | NULL        | NULL
|      NULL |     NULL | NULL      |
+-------+-----------------------------------------------+-----------------------------------------
```

(ie. it's a "Resolution Date").

This query identifies a particular custom field value in a particular issue:

```
mysql> select stringvalue from customfieldvalue where customfield=(select id from customfield
where cfname='Urgency') and issue=(select id from jiraissue where pkey='FOR-845');
+-------------+
| stringvalue |
+-------------+
| Low         |
+-------------+
1 row in set (0.33 sec)
```

If the custom field has multiple values (multi-select or multi-user picker), each issue can have multiple `customfieldvalue` rows:

```
mysql> select * from customfieldvalue where customfield=(select ID from customfield where
cfname='MultiUser');
+-------+-------+-------------+-----------+-------------+-------------+-----------+-----------+------
ID     | ISSUE | CUSTOMFIELD | PARENTKEY | STRINGVALUE | NUMBERVALUE | TEXTVALUE | DATEVALUE |
VALUETYPE |
+-------+-------+-------------+-----------+-------------+-------------+-----------+-----------+------
10002 | 10060 |       10000 | NULL      | bob         |        NULL | NULL      | NULL      | NULL
|
| 10003 | 10060 |       10000 | NULL      | jeff        |        NULL | NULL      | NULL      |
NULL      |
+-------+-------+-------------+-----------+-------------+-------------+-----------+-----------+------
rows in set (0.00 sec)
```

Here issue 10060 has two users, `bob` and `jeff` in its MultiUser custom field.

Custom field configuration options

The option sets (1, 2, 3 and A, B, C) are stored in the **customfieldoption** table:

mysql> select * from customfieldoption where customfieldconfig=10031;

ID	CUSTOMFIELD	CUSTOMFIELDCONFIG	PARENTOPTIONID	SEQUENCE	customvalue	optiontype
10000	10001	10031	NULL	0	1	NULL
10001	10001	10031	NULL	1	2	NULL
10002	10001	10031	NULL	2	3	NULL

mysql> select * from customfieldoption where customfieldconfig=10032;

ID	CUSTOMFIELD	CUSTOMFIELDCONFIG	PARENTOPTIONID	SEQUENCE	customvalue	optiontype
10003	10001	10032	NULL	0	A	NULL
10004	10001	10032	NULL	1	B	NULL
10005	10001	10032	NULL	2	C	NULL

Custom field configuration default value

The custom field default value is stored in the **genericconfiguration** table. Since this table must store a value for any custom field type (cascading selects, multi-selects, etc) the value is encoded as XML.

If we were to set a default value of "2" for our "Default Configuration Scheme for SelectCF", it would be recorded as:

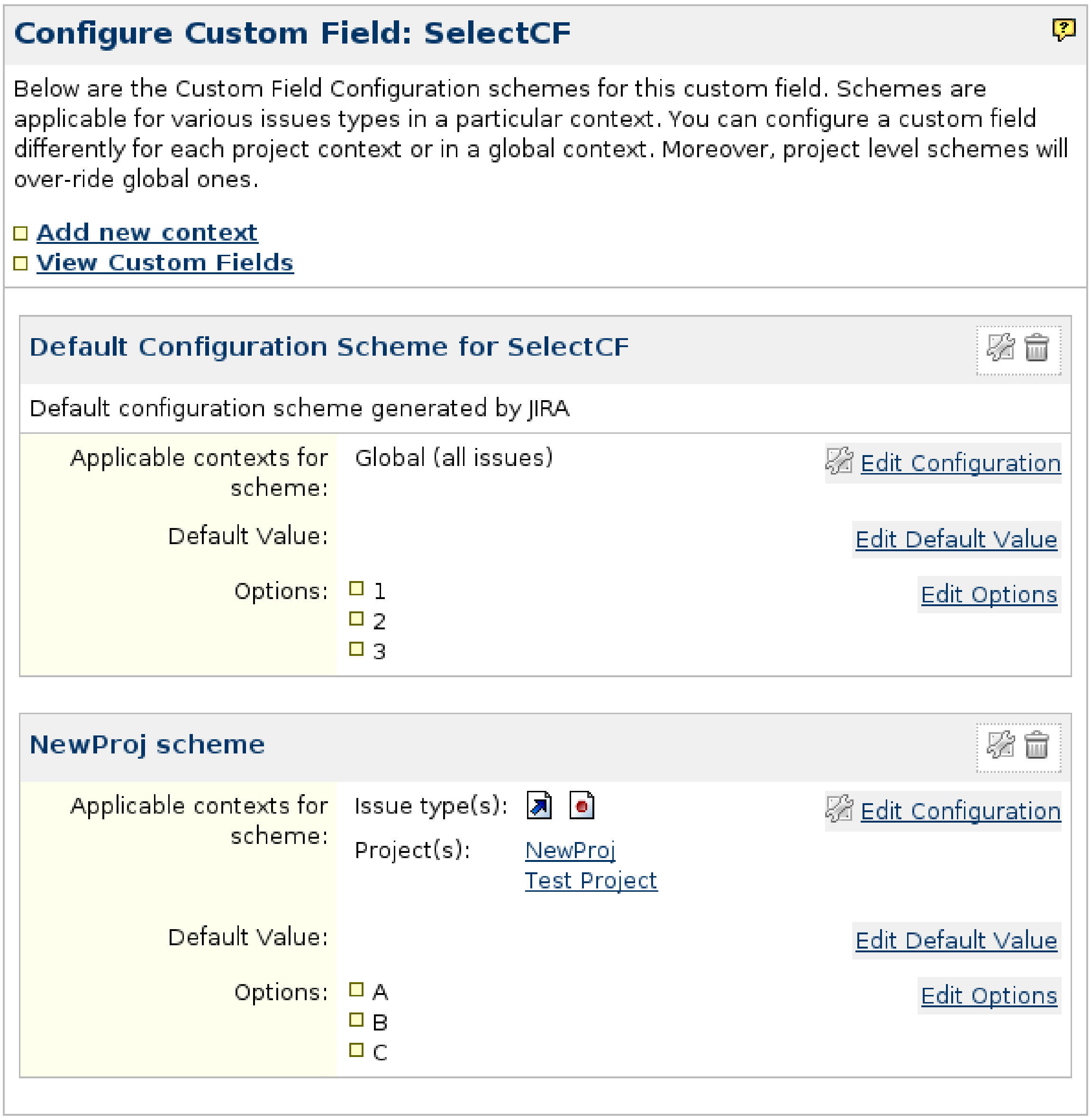
mysql> select * from genericconfiguration where ID=10031;

ID	DATATYPE	DATAKEY	XMLVALUE
10031	DefaultValue	10030	<string>2</string>

Custom field configuration schemes

JIRA custom fields can have different default values and possible values for each project and/or issue type. This is set up by clicking 'Configure' in the custom field definition.

For instance, in this screenshot the "SelectCF" select-list field will have values 1, 2, 3 for all projects except bugs and improvements in "NewProj" and"Test Project", which will have values A, B and C:



Custom field configuration scopes

In the database, these custom field configuration schemes are stored in the **fieldconfigscheme** table

mysql> select * from fieldconfigscheme where id in (10031,10032);

ID	configname	DESCRIPTION	FIELDID	CUSTOMFIELD
10031	Default Configuration Scheme for SelectCF	Default configuration scheme generated by JIRA	customfield_10001	NULL
10032	NewProj scheme		customfield_10001	NULL

The **projects in scope** for each of these schemes is listed as records (one per project) in the **configurationcontext** table:

mysql> select * from configurationcontext where fieldconfigscheme=10031;

ID	PROJECTCATEGORY	PROJECT	customfield	FIELDCONFIGSCHEME
10053	NULL	NULL	customfield_10001	10031

(Here showing that that the "Default Configuration Scheme for SelectCF" applies to all projects)

mysql> select * from configurationcontext where fieldconfigscheme=10032;

ID	PROJECTCATEGORY	PROJECT	customfield	FIELDCONFIGSCHEME
10054	NULL	10000	customfield_10001	10032
10055	NULL	10010	customfield_10001	10032

(Here showing that "NewProj scheme" is restricted to projects with ids 10000 and 10010 ("Test Project" and "NewProj")).

Finally, the **issue types in scope** for each scheme is listed as records (one per issue type) in the **fieldconfigschemeissuetype** table:

mysql> select * from fieldconfigschemeissuetype where fieldconfigscheme = 10031;

ID	ISSUETYPE	FIELDCONFIGSCHEME	FIELDCONFIGURATION
10051	NULL	10031	10031

(Here showing that "Default Configuration Scheme for SelectCF" is not limited to any issue types)

mysql> select * from fieldconfigschemeissuetype where fieldconfigscheme = 10032;

ID	ISSUETYPE	FIELDCONFIGSCHEME	FIELDCONFIGURATION
10052	1	10032	10032
10053	4	10032	10032

(Here showing that "Newproj scheme" is limited to issue types with IDs 1 and 4).

Note that there should *always be a record* in `configurationcontext` and `fieldconfigschemeissuetype` for each issue type configuration scheme. If the scheme isn't restricted to any projects or issue types, the `project` and `issuetype` columns of the respective tables should be `NULL`. Incidentally JIRA has/had a bug where it didn't leave an entry when deleting an issue type (JRA-10461), so if you are making changes manually, don't make the same mistake.

Issue fields

This page shows how to examine each of a JIRA issue's fields via SQL. We will use JRA-3166 as a sample issue in our queries.

Simple fields

Most fields in JIRA are kept in the `jiraissue` table:

```
mysql> desc jiraissue;
+----------------------+---------------+------+-----+---------+-------+
| Field                | Type          | Null | Key | Default | Extra |
+----------------------+---------------+------+-----+---------+-------+
| ID                   | decimal(18,0) | NO   | PRI |         |       |
| pkey                 | varchar(255)  | YES  | MUL | NULL    |       |
| PROJECT              | decimal(18,0) | YES  | MUL | NULL    |       |
| REPORTER             | varchar(255)  | YES  |     | NULL    |       |
| ASSIGNEE             | varchar(255)  | YES  | MUL | NULL    |       |
| issuetype            | varchar(255)  | YES  |     | NULL    |       |
| SUMMARY              | varchar(255)  | YES  |     | NULL    |       |
| DESCRIPTION          | longtext      | YES  |     | NULL    |       |
| ENVIRONMENT          | longtext      | YES  |     | NULL    |       |
| PRIORITY             | varchar(255)  | YES  |     | NULL    |       |
| RESOLUTION           | varchar(255)  | YES  |     | NULL    |       |
| issuestatus          | varchar(255)  | YES  |     | NULL    |       |
| CREATED              | datetime      | YES  |     | NULL    |       |
| UPDATED              | datetime      | YES  |     | NULL    |       |
| DUEDATE              | datetime      | YES  |     | NULL    |       |
| VOTES                | decimal(18,0) | YES  |     | NULL    |       |
| TIMEORIGINALESTIMATE | decimal(18,0) | YES  |     | NULL    |       |
| TIMEESTIMATE         | decimal(18,0) | YES  |     | NULL    |       |
| TIMESPENT            | decimal(18,0) | YES  |     | NULL    |       |
| WORKFLOW_ID          | decimal(18,0) | YES  |     | NULL    |       |
| SECURITY             | decimal(18,0) | YES  |     | NULL    |       |
| FIXFOR               | decimal(18,0) | YES  |     | NULL    |       |
| COMPONENT            | decimal(18,0) | YES  |     | NULL    |       |
+----------------------+---------------+------+-----+---------+-------+
```

They can be retrieved with a regular select:

```
mysql> select id, pkey, project, reporter, assignee, issuetype, summary from jiraissue where
pkey='JRA-3166';
+-------+----------+---------+-----------+----------+-----------+----------------------------------+ |
id    | pkey     | project | reporter  | assignee | issuetype | summary                          |
+-------+----------+---------+-----------+----------+-----------+----------------------------------+ |
16550 | JRA-3166 |   10240 | mvleeuwen | NULL     | 2         | Database consistency check tool |
+-------+----------+---------+-----------+----------+-----------+----------------------------------+
```

User details

Say we wish to find out the email address and other details about our reporter, `mvleeuwen`. First we find this user's ID:

```
mysql> select id from userbase where username='mvleeuwen';
+-------+
| id    |
+-------+
| 13841 |
+-------+
```

Then use it to look up 'properties' of this userbase record (stored in propertysets. Each property has a record in the `propertyentry` table specifying its name and type, and a record in one of `propertystring`, `propertydecimal`, `propertydate`, `propertytext`, `propertydata` or `propertynumber`, depending on the type.

```
mysql> desc propertyentry;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| ID           | decimal(18,0) | NO   | PRI |         |       |
| ENTITY_NAME  | varchar(255)  | YES  |     | NULL    |       |
| ENTITY_ID    | decimal(18,0) | YES  | MUL | NULL    |       |
| PROPERTY_KEY | varchar(255)  | YES  |     | NULL    |       |
| propertytype | decimal(9,0)  | YES  |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+

mysql> select * from propertyentry where ENTITY_NAME='OSUser' and ENTITY_ID=(select id from
userbase where username='mvleeuwen');
+-------+-------------+-----------+--------------+--------------+
| ID    | ENTITY_NAME | ENTITY_ID | PROPERTY_KEY | propertytype |
+-------+-------------+-----------+--------------+--------------+
| 18352 | OSUser      |     13841 | email        |            5 |
| 18353 | OSUser      |     13841 | fullName     |            5 |
+-------+-------------+-----------+--------------+--------------+
```

So `email` and `fullName` are of type 5. which means the `propertystring` table. Here is the list of `propertytype` to table mappings:

propertyentry.propertytype value	Table value is stored in	Used for
1	propertynumber	Boolean values, eg. user preferences
5	propertystring	Most fields, eg. full names, email addresses
6	propertytext	Large blocks of text, eg. the introduction text, HTML portletconfigurations
2	propertydecimal (int)	Unused in JIRA, but used by Bamboo
3	propertydecimal (long)	Unused in JIRA
7	propertydate	Unused in JIRA
10	propertydata	Unused in JIRA

So the `email` and `fullName` properties are strings, and so can be found in the `propertystring` table:

```
mysql> select * from propertystring where id in (18352, 18353);
+-------+--------------------+
| ID    | propertyvalue      |
+-------+--------------------+
| 18352 | lemval@zonnet.nl   |
| 18353 | Michael van Leeuwen |
+-------+--------------------+
```

Components and versions

Since each issue can have multiple components/versions, there is a join table between `jiraissue` and `version/component` tables called `nodeassociation`:

```
mysql> desc nodeassociation;
+--------------------+---------------+------+-----+---------+-------+
| Field              | Type          | Null | Key | Default | Extra |
+--------------------+---------------+------+-----+---------+-------+
| SOURCE_NODE_ID     | decimal(18,0) | NO   | PRI |         |       |
| SOURCE_NODE_ENTITY | varchar(60)   | NO   | PRI |         |       |
| SINK_NODE_ID       | decimal(18,0) | NO   | PRI |         |       |
| SINK_NODE_ENTITY   | varchar(60)   | NO   | PRI |         |       |
| ASSOCIATION_TYPE   | varchar(60)   | NO   | PRI |         |       |
| SEQUENCE           | decimal(9,0)  | YES  |     | NULL    |       |
+--------------------+---------------+------+-----+---------+-------+

mysql> select distinct SOURCE_NODE_ENTITY from nodeassociation;
+--------------------+
| SOURCE_NODE_ENTITY |
+--------------------+
| Issue              |
| Project            |
+--------------------+

mysql> select distinct SINK_NODE_ENTITY from nodeassociation;
+-----------------------+
| SINK_NODE_ENTITY      |
+-----------------------+
| IssueSecurityScheme   |
| PermissionScheme      |
| IssueTypeScreenScheme |
| NotificationScheme    |
| ProjectCategory       |
| FieldLayoutScheme     |
| Component             |
| Version               |
+-----------------------+

mysql> select distinct ASSOCIATION_TYPE from nodeassociation;
+------------------+
| ASSOCIATION_TYPE |
+------------------+
| IssueVersion     |
| IssueFixVersion  |
| IssueComponent   |
| ProjectScheme    |
| ProjectCategory  |
+------------------+
```

So to get fix-for versions of an issue, run:

```
mysql> select * from projectversion where id in (
    select SINK_NODE_ID from nodeassociation where ASSOCIATION_TYPE='IssueFixVersion' and
SOURCE_NODE_ID=(
        select id from jiraissue where pkey='JRA-5351')
    );
+-------+---------+-------+-------------+----------+----------+----------+------+-------------+
| ID    | PROJECT | vname | DESCRIPTION | SEQUENCE | RELEASED | ARCHIVED | URL  | RELEASEDATE |
+-------+---------+-------+-------------+----------+----------+----------+------+-------------+
| 11614 |   10240 | 3.6   | NULL        |      131 | NULL     | NULL     | NULL | NULL        |
+-------+---------+-------+-------------+----------+----------+----------+------+-------------+
```

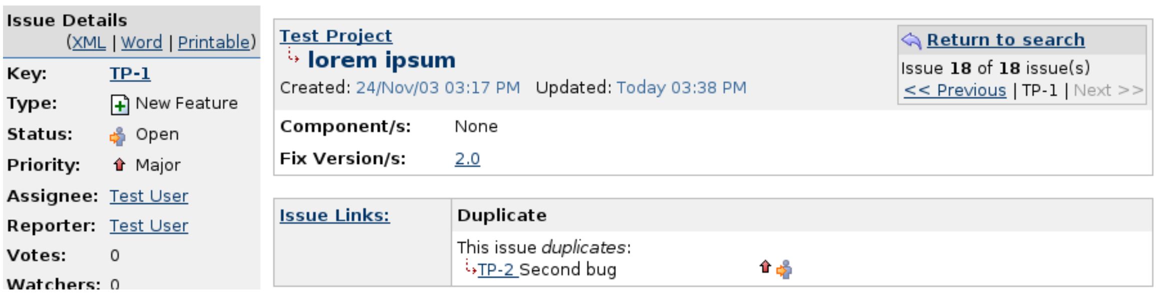
Similarly with affects versions:

```
mysql> select * from projectversion where id in (
    select SINK_NODE_ID from nodeassociation where ASSOCIATION_TYPE='IssueVersion' and
SOURCE_NODE_ID=(
        select id from jiraissue where pkey='JRA-5351')
    );
+-------+---------+--------------------+------------+----------+----------+----------+------+------
ID     | PROJECT | vname                | DESCRIPTION | SEQUENCE | RELEASED | ARCHIVED | URL  |
RELEASEDATE          |
+-------+---------+--------------------+------------+----------+----------+----------+------+------
10931 |   10240 |  3.0.3 Professional | NULL        |       73 | true     | NULL     | NULL |
2004-11-19 00:00:00 |
| 10930 |   10240 |  3.0.3 Standard     | NULL        |       72 | true     | NULL     | NULL |
2004-11-19 00:00:00 |
| 10932 |   10240 |  3.0.3 Enterprise   | NULL        |       74 | true     | NULL     | NULL |
2004-11-19 00:00:00 |
+-------+---------+--------------------+------------+----------+----------+----------+------+------
```

and components:

```
mysql> select * from component where id in (
    select SINK_NODE_ID from nodeassociation where ASSOCIATION_TYPE='IssueComponent' and
SOURCE_NODE_ID=(
        select id from jiraissue where pkey='JRA-5351')
    );
+-------+---------+---------------+-------------+------+------+--------------+
| ID     | PROJECT | cname         | description | URL   | LEAD | ASSIGNEETYPE |
+-------+---------+---------------+-------------+------+------+--------------+
| 10126 |    10240 | Web interface | NULL         | NULL | NULL |         NULL |
+-------+---------+---------------+-------------+------+------+--------------+
```

Issue links



JIRA issue links are stored in the `issuelink` table, which simply links the IDs of two issues together, and records the link type:

```
mysql> desc issuelink;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| ID          | decimal(18,0) | NO   | PRI |         |       |
| LINKTYPE    | decimal(18,0) | YES  | MUL | NULL    |       |
| SOURCE      | decimal(18,0) | YES  | MUL | NULL    |       |
| DESTINATION | decimal(18,0) | YES  | MUL | NULL    |       |
| SEQUENCE    | decimal(18,0) | YES  |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

For instance, to list all links between TP-1 and TP-2:

```
mysql> select * from issuelink where SOURCE=(select id from jiraissue where pkey='TP-1') and
DESTINATION=(select id from jiraissue where pkey='TP-2');
+-------+----------+--------+-------------+----------+
| ID     | LINKTYPE | SOURCE | DESTINATION | SEQUENCE |
+-------+----------+--------+-------------+----------+
| 10020 |    10000 |  10000 |       10010 |     NULL |
+-------+----------+--------+-------------+----------+
1 row in set (0.00 sec)
```

Link types are defined in `issuelinktype`. This query prints all links in the system with their type:

```
mysql> select j1.pkey, issuelinktype.INWARD, j2.pkey from jiraissue j1, issuelink, issuelinktype,
jiraissue j2 where j1.id=issuelink.SOURCE and j2.id=issuelink.DESTINATION and
issuelinktype.id=issuelink.linktype;
+-------+---------------------+-------+
| pkey  | INWARD              | pkey  |
+-------+---------------------+-------+
| TP-4  | jira_subtask_inward | TP-5  |
| TP-4  | jira_subtask_inward | TP-7  |
| TP-4  | jira_subtask_inward | TP-8  |
| TP-11 | jira_subtask_inward | TP-12 |
| TP-4  | jira_subtask_inward | TP-6  |
| TP-1  | is duplicated by    | TP-2  |
+-------+---------------------+-------+
6 rows in set (0.00 sec)
```

Subtasks

As shown in the last query, JIRA records the issue-subtask relation as a link. The "subtask" link type is hidden in the user interface (indicated by the 'pstyle' value below), but visible in the database:

```
mysql> select * from issuelinktype;
+-------+-------------------+---------------------+----------------------+--------------+
| ID    | LINKNAME          | INWARD              | OUTWARD              | pstyle       |
+-------+-------------------+---------------------+----------------------+--------------+
| 10000 | Duplicate         | is duplicated by    | duplicates           | NULL         |
| 10001 | jira_subtask_link | jira_subtask_inward | jira_subtask_outward | jira_subtask |
+-------+-------------------+---------------------+----------------------+--------------+
2 rows in set (0.00 sec)
```

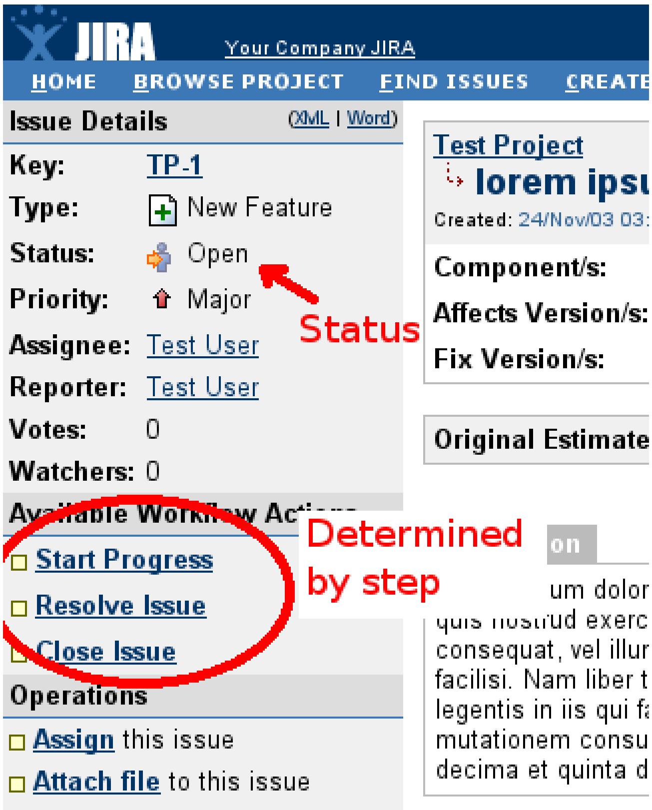
This means it is possible to convert an issue to a subtask, or vice-versa, by tweaking `issuelink` records.

Custom fields have their own set of tables. For details, see Custom fields

Issue status and workflow

This page describes the database tables involved in issue workflow. It will be useful for people who wish to insert issues into the database manually, or diagnose/fix corrupted databases.
JIRA issues have both:

- a **status** (Open, Closed, In Progress etc).
- a **workflow step**, which governs which transitions are available



Issue status

In the database, the **status** (Open, Closed etc) is stored on the `jiraissue` table:

```
mysql> select issuestatus from jiraissue where pkey='TP-1';
+-------------+
| issuestatus |
+-------------+
| 1           |
+-------------+
1 row in set (0.00 sec)

mysql> select pname from issuestatus, jiraissue where issuestatus.id=jiraissue.issuestatus and
pkey='TP-1';
+-------+
| pname |
+-------+
| Open  |
+-------+
1 row in set (0.00 sec)
```

Issue workflow step

Originally JIRA issues only had a status. Then in version 2.0, *workflow* was added, so that transitions between statuses could be customized. An issue's workflow step is stored in new tables, referenced from `jiraissue` by the `workflow_id`:

```
mysql> select * from OS_WFENTRY where ID=(select workflow_id from jiraissue where pkey='TP-1');
+-------+------+------------+-------+
| ID    | NAME | INITIALIZED | STATE |
+-------+------+------------+-------+
| 10000 | jira | 0          | 1     |
+-------+------+------------+-------+
1 row in set (0.02 sec)
```

The TP-1 issue's OS_WFENTRY row indicates that the issue uses the 'jira' (default, built-in) workflow.

```
mysql> select * from OS_CURRENTSTEP where ENTRY_ID=(select workflow_id from jiraissue where
pkey='TP-1');
+-------+----------+---------+-----------+-------+---------------------+----------+-------------+----
ID     | ENTRY_ID | STEP_ID | ACTION_ID | OWNER | START_DATE          | DUE_DATE | FINISH_DATE |
STATUS | CALLER |
+-------+----------+---------+-----------+-------+---------------------+----------+-------------+----
10000 | 10000    | 1       | 0         |       | 2003-11-24 15:17:50 |          |             |
Open   |         |
+-------+----------+---------+-----------+-------+---------------------+----------+-------------+----
row in set (0.13 sec)
```

The issue's OS_CURRENTSTEP row specifies the issue's *current step*. The only field really used is `STEP_ID`. This references a step definition in the workflow:

```
<step id="1" name="Open">
```

The workflow definition for the built-in 'jira' workflow can be seen in `atlassian-jira/WEB-INF/classes/jira-workflow.xml`

How status and step relate

An issue's status and workflow step are kept in synch:

```
mysql> select issuestatus.pname status, issuestatus, OS_CURRENTSTEP.STEP_ID, OS_CURRENTSTEP.STATUS
from
   issuestatus, jiraissue, OS_CURRENTSTEP where
   issuestatus.id=jiraissue.issuestatus and jiraissue.workflow_id=OS_CURRENTSTEP.ENTRY_ID;
+-------------+-------------+---------+----------+
| status      | issuestatus | STEP_ID | STATUS   |
+-------------+-------------+---------+----------+
| Open        | 1           | 1       | Open     |
| Open        | 1           | 1       | Open     |
| Open        | 1           | 1       | Open     |
| Open        | 1           | 1       | Open     |
| Open        | 1           | 1       | Open     |
| Open        | 1           | 1       | Open     |
...
| Open        | 1           | 1       | Open     |
| Open        | 1           | 1       | Open     |
| Open        | 1           | 1       | Open     |
| In Progress | 3           | 3       | Underway |
| Closed      | 6           | 6       | Closed   |
+-------------+-------------+---------+----------+
32 rows in set (0.00 sec)

mysql>
```

Status and step are kept in synch is with a workflow post-function (UpdateIssueStatusFunction), which updates the status whenever the step changes.

If the step gets out of synch with the status, then incorrect (or no) workflow operations appear on the issue page. Eg. if OS_CURRENTSTEP.STEP_ID was 6 ("Closed") when jiraissue.issuestatus was 1 ("Open"), then the issue would have only one transition ("Reopen issue") which would break if anyone clicked on it.

Summary

- For each `jiraissue` row, there is a `OS_CURRENTSTEP` and `OS_WFENTRY` row.
- `OS_WFENTRY` specifies the applicable workflow. `OS_CURRENTSTEP` specifies the step in that workflow.
- The relations are:
  - jiraissue.WORKFLOW_ID == OS_WFENTRY.ID
  - jiraissue.WORKFLOW_ID == OS_CURRENTSTEP.ENTRY_ID

Logging JIRA SQL Queries

Enabling Application Logging

SQL Logging has a significant performance impact. Perform this on a test system if possible.

To debug an SQL query run by JIRA, modify the following line in `<install-directory>/atlassian-jira/WEB-INF/classes/log4j.properties`:

```
log4j.logger.com.atlassian.jira.ofbiz.LoggingSQLInterceptor = OFF, sqllog
```

Change it to:

```
log4j.logger.com.atlassian.jira.ofbiz.LoggingSQLInterceptor = ON, sqllog
```

The logging will be output to `<jira home directory>/log/atlassian-jira-sql.log` after a restart. See Where are the application server logs? for more information on where the logs are located.

Adding Database SQL Query Logging

Often, good logging is available from native database tools. If you've already identified a questionable SQL query, the application logging will take you to the next step, as it logs the Java stack trace associated with the SQL query.

Assessment

Logging output should look like:

```
WHERE ENTITY_NAME='jira.properties' AND ENTITY_ID='1' AND PROPERTY_KEY='License Hash 1 Text'"
2010-01-22 11:42:35,897 main     call stack
   ...
   at
com.opensymphony.module.propertyset.ofbiz.OFBizPropertySet.findPropertyEntry(OFBizPropertySet.java:22
at com.opensymphony.module.propertyset.ofbiz.OFBizPropertySet.getType(OFBizPropertySet.java:107)
   at com.atlassian.jira.propertyset.PropertySetCache.cloneProperty(PropertySetCache.java:319)
   at com.atlassian.jira.propertyset.PropertySetCache.bulkLoad(PropertySetCache.java:303)
   at com.atlassian.jira.propertyset.JiraCachingPropertySet.init(JiraCachingPropertySet.java:834)
   at
com.opensymphony.module.propertyset.PropertySetManager.getInstance(PropertySetManager.java:45)
   at
com.opensymphony.module.propertyset.PropertySetManager.getInstance(PropertySetManager.java:22)
   at
com.atlassian.jira.config.properties.PropertiesManager.loadPropertySet(PropertiesManager.java:83)
   at com.atlassian.jira.config.properties.PropertiesManager.<init>(PropertiesManager.java:29)
   at
com.atlassian.jira.config.properties.PropertiesManager.getInstance(PropertiesManager.java:39)
   at
com.atlassian.jira.config.properties.ApplicationPropertiesImpl.getPropertiesManager(ApplicationProper
at
com.atlassian.jira.config.properties.ApplicationPropertiesImpl.getString(ApplicationPropertiesImpl.ja
at
com.atlassian.jira.config.properties.ApplicationPropertiesImpl.getDefaultBackedString(ApplicationProp
at com.atlassian.jira.ComponentManager.registerExtensions(ComponentManager.java:299)
   at com.atlassian.jira.ComponentManager.initialise(ComponentManager.java:195)
   at com.atlassian.jira.ComponentManager.<init>(ComponentManager.java:181)
   at com.atlassian.jira.ComponentManager.<clinit>(ComponentManager.java:159)
   at
com.atlassian.jira.upgrade.ConsistencyLauncher.launchConsistencyChecker(ConsistencyLauncher.java:63)
```

This shows both the SQL query and the stacktrace that called it. You can associate what plugin or JIRA function is causing heavy load on your database.

User and Group Tables

User and Group Tables

JIRA 4.3 and higher uses "Embedded Crowd" as its user management framework.
For the old User and Group tables see Database Schema v4.2.

Users

Users are stored in the **CWD_USER** table:

COLUMN_NAME	DATA_TYPE	COMMENTS
ID	NUMBER(18,0)	
DIRECTORY_ID	NUMBER(18,0)	Links to CWD_DIRECTORY
USER_NAME	VARCHAR2(255)	
LOWER_USER_NAME	VARCHAR2(255)	used for case-insensitive search
ACTIVE	NUMBER(9,0)	
CREATED_DATE	DATE	
UPDATED_DATE	DATE	
FIRST_NAME	VARCHAR2(255)	Not used
LOWER_FIRST_NAME	VARCHAR2(255)	Not used
LAST_NAME	VARCHAR2(255)	Not used
LOWER_LAST_NAME	VARCHAR2(255)	Not used
DISPLAY_NAME	VARCHAR2(255)	
LOWER_DISPLAY_NAME	VARCHAR2(255)	
EMAIL_ADDRESS	VARCHAR2(255)	
LOWER_EMAIL_ADDRESS	VARCHAR2(255)	
CREDENTIAL	VARCHAR2(255)	

See also **CWD_USER_ATTRIBUTES** which stores arbitrary "Attributes" against the User.

Group Tables

The groups are stored in the **CWD_GROUP** table:

COLUMN_NAME	DATA_TYPE	COMMENTS
ID	NUMBER(18,0)	
GROUP_NAME	VARCHAR2(255)	
LOWER_GROUP_NAME	VARCHAR2(255)	used for case-insensitive search
ACTIVE	NUMBER(9,0)	
LOCAL	NUMBER(9,0)	
CREATED_DATE	DATE	
UPDATED_DATE	DATE	
DESCRIPTION	VARCHAR2(255)	
LOWER_DESCRIPTION	VARCHAR2(255)	
GROUP_TYPE	VARCHAR2(60)	
DIRECTORY_ID	NUMBER(18,0)	Links to CWD_DIRECTORY

See also **CWD_GROUP_ATTRIBUTES** which stores arbitrary "Attributes" against the Group.

Group Membership

The `CWD_MEMBERSHIP` table records which users belong to which groups.
Note that it is also used to store parent/child relationships for nested groups.

COLUMN_NAME	DATA_TYPE	COMMENTS
ID	NUMBER(18,0)	
PARENT_ID	NUMBER(18,0)	Parent Group
CHILD_ID	NUMBER(18,0)	User or nested Group ID
MEMBERSHIP_TYPE	VARCHAR2(60)	Indicates a Group-User membership or Group-Group membership

GROUP_TYPE	VARCHAR2(60)	not used
PARENT_NAME	VARCHAR2(255)	Parent Group
LOWER_PARENT_NAME	VARCHAR2(255)	used for case-insensitive search
CHILD_NAME	VARCHAR2(255)	User or child Group
LOWER_CHILD_NAME	VARCHAR2(255)	used for case-insensitive search
DIRECTORY_ID	NUMBER(18,0)	Note that this must match the DirectoryId for the Group and User

User Directories

JIRA can have multiple "User Directories".
The Directory Configuration is stored in CWD_DIRECTORY, CWD_DIRECTORY_ATTRIBUTE, and CWD_DIRECTORY_OPERATION.

Watches and Votes

Watches and votes are recorded in the **USERASSOCIATION** table:

COLUMN_NAME	DATA_TYPE	COMMENTS
SOURCE_NAME	VARCHAR2(60)	username
SINK_NODE_ID	NUMBER(18,0)	
SINK_NODE_ENTITY	VARCHAR2(60)	
ASSOCIATION_TYPE	VARCHAR2(60)	
SEQUENCE	NUMBER(9,0)	

For example:

```
mysql> select * from userassociation;
+---------------+-------------+------------------+------------------+----------+
| SOURCE_NAME   | SINK_NODE_ID | SINK_NODE_ENTITY | ASSOCIATION_TYPE | SEQUENCE |
+---------------+-------------+------------------+------------------+----------+
| asmith        |     108433   | Issue            | WatchIssue       |     NULL |
| droberts      |     100915   | Issue            | WatchIssue       |     NULL |
| dfernandez    |     106387   | Issue            | VoteIssue        |     NULL |
...
```

For example, here user 'asmith' is watching issue with id 108433.

JIRA Architectural Overview

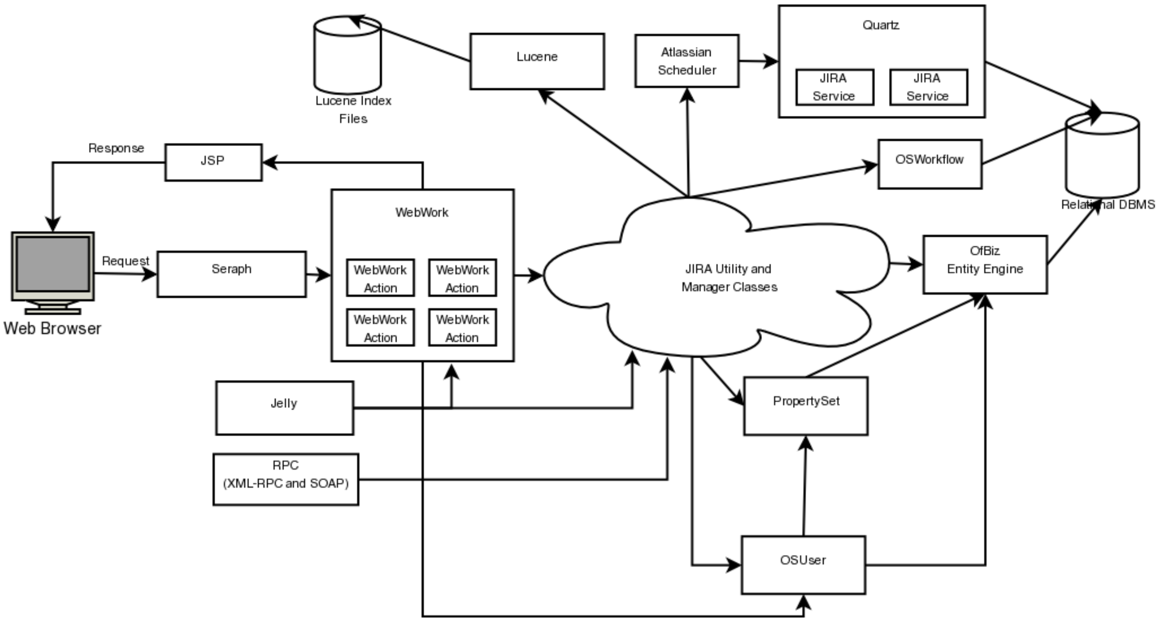
- JIRA Overview
  - Technical Introduction to JIRA
    - WebWork
    - Seraph
    - OSUser
    - PropertySet
    - JIRA Utility and Manager Classes

JIRA Overview

This page provides a very high level overview of JIRA's dependencies and the role each one plays in JIRA. This page makes references to external resources (websites, books) where one can find more information.

Technical Introduction to JIRA

JIRA is a web application written in Java. It is deployed as a standard Java WAR file into a java Servlet Container such as Tomcat.



WebWork

As JIRA is a web application, users interact with JIRA using a web browser. JIRA uses OpenSymphony's WebWork 1 to process web requests submitted by users. Please note that WebWork 1, **not** 2, is used. WebWork 1 is a MVC framework similar to Struts. Each request is handled by a WebWork action which usually uses other objects, such as utility and Manager classes to accomplish a task.

JIRA uses JSP for the View layer. So most of HTML that is served to the user as the response to their web request is generated by a JSP. Therefore, to generate a response the WebWork action uses a JSP.

Also see JIRA Webwork Actions.

For more information on WebWork 1 please see its online documentation.

Seraph

Almost all authentication in JIRA is performed through Seraph, Atlasian's open source web authentication framework. The goal of seraph is to provide a simple, extensible authentication system that we can use on any application server.

Seraph is implemented as a servlet filter. Its sole job is, given a web request, to associate that request with a particular user. It supports several methods of authentication, including HTTP Basic Authentication, form-based authentication (ie. redirect to an internal or external login form), and looking up credentials already stored in the user's session (e.g. a cookie set by a SSO system).

Seraph performs no user management itself. It merely checks the credentials of the incoming request, and delegates any user-management functions (looking up a user, checking a user's password is correct) to JIRA's user-management - OSUser (discussed later in this document).

If you were looking to integrate JIRA with a Single Sign-On (SSO) solution, you would do so by writing a custom Seraph authenticator (and in fact, many customers have done so). Please note that by default JIRA is not shipped with any SSO integration, customers have to write a custom Authenticator themselves. You may also want to check out Crowd and integrating JIRA with Crowd.

Another **very important** function that Seraph performs in JIRA is to only allow users with Global Admin permission to access WebWork actions that allow the user to perform administration tasks. These WebWork actions are accessed by URLs starting with "/admin". For more information on JIRA's permission please see JIRA's documentation.

For more information on how seraph works internally please see this page.

OSUser

OSUser is OpenSymphony's user and group management framework.

OSUser provides the following functionality:

1. Stores users and groups in JIRA's database
2. Stores group membership (which users are part of which groups) in JIRA's db
3. Stores user preferences (e.g. whether a user would like to receive HTML or Text e-mails)
4. Authenticates users (checks if the users password matches)
5. Provides API that allows to manage (create, delete) users, manage group membership (add and remove users from groups), and manage users' preferences.

As mentioned previously, Seraph delegates to OSUser to authenticate the user (i.e. check whether the correct password has been entered when a user tries to login).

OSUser uses the following tables in the database:

1. `userbase` - stores one record for each JIRA user
2. `groupbase` - stores one record for each JIRA group
3. `membershipbase` - stores which users are members of which group

Note that `userbase` table only stores the numeric (arbitrary) id of the user, username, and a hashed password.

OSUser uses PropertySet (covered in the next section) to store user's e-mail address, and full name. PropertySet is also used to store user preferences. In JIRA the preferences include things like:

- whether the user would like to receive HTML or Text e-mail
- number of issues to display in JIRA's Issue Navigator
- whether to receive notifications for user's own updates to issues
- Locale (Language) of the user

OSUser also provides simple authentication against LDAP, which JIRA can utilise. Note, that **only** LDAP authentication is supported; the user records must still exist in JIRA's database. For more information on JIRA's LDAP autentication please see this document.

For more information on OSUSer, please see its documentation.

Note that we are hoping to migrate JIRA to Polis for user management so that full LDAP user and group management is supported. Confluence has already done so.

PropertySet

OpenSymphony's PropertySet is a framework that can store a set of properties (key/value pairs) against a particular "entity" with a unique id. An "entity" can be anything one wishes. For exmaple, OSUser uses PropertySet to store user's e-mail address, full name and preferences. Therefore, in case of OSUSer, the "entity" is a User.

Each property has a key (which is always a java.lang.String) and a value, which can be:

1. java.lang.String
2. java.lang.Long
3. java.util.Date
4. java.lang.Double

Each property is always associated with **one** entity. As far as PropertySet is concerned an "entity" has an entity name, and a numeric id. As long as the same entity name/id combination is used to store the value and retrieve the value, everything will work.

In JIRA PropertySet uses the following database tables:

1. `propertyentry` - records the entity name and id for a property, its key, and the data type of the property's value. Each record in this table also has a unique id.
2. `propertystring` - records String values
3. `propertydecimal` - records Double values
4. `propertydate` - records Date values
5. `propertynumber` - records Long values

Each of the records in property<type> tables also has an id column. The id is the same as the id of the propertyentry record for this property. As the property's key and value are split across 2 tables, to retrieve a property value, a join needs to be done, between propertyentry table and one of the property<type> tables. Which property<type> table to join with is determined by the value of the `propertytype` column in the propertyentry record.

Here is an example of a full name stored for a user:
(to do)

PropertySet is used in JIRA:

1. By the OSUser framework to store users e-mail, fullname, and preferences
2. To store Application Properties, which are configurable settings that a user can change to customise their installation of JIRA. For more information on Application Properties please see JIRA's documentation
3. To store chosen preferences of Portlets on user's Dashboards.

For more information on PropertySet please see its documentation. Also see JIRA Database Schema.

JIRA Utility and Manager Classes

A lot of business logic in JIRA is implemented in 100s of java classes. The classes can be simple utility classes or Manager Objects.

Manager Objects in JIRA usually have one specific goal (or topic). For example `com.atlassian.jira.project.version.VersionManager` is used to work with project versions, i.e. create, update, delete and retrieve versions.

Manager objects use a lot of external dependencies, most of which are open source, but some are developed by Atlassian and are usually shared between Atlassian products.

Since JIRA 3.7 Manager classes are generally also wrapped by a corresponding service class. The idea is that any validation of business logic necessary is carried out by the service classes whereas manager classes are responsible for actually doing the action. For instance see the ProjectService's validateCreate method and it's corresponding create method. The ProjectManager then only has a create method which will go off and create a project assuming any validation has already been carried out by the client. This allows clients to simply call the service class in order to validate and create a project, but still gives the flexibility of circumventing validation if the ProjectManager is used directly.

JIRA Webwork Actions

Webwork Actions and `actions.xml`

A web application framework defines what happens when you visit a particular URL in a web application. For example, the URL for a simple static page with no dynamic content could end in ".html". A ".jspa" suffix indicates that the URL is referring to a page whose content was created using Java Server Pages (JSP). JSP files are templates that can contain both HTML and commands to create HTML. The commands refer to a Java object and the object's methods are called just as in an ordinary Java program. The mapping of the URL to a Java class in JIRA is done using the Webwork 1.x web application framework. The original documentation for Webwork 1.x can be found at http://opensymphony.com/webwork_old/src/docs/manual and http://wiki.opensymphony.com/display/WW1/Home. However, this framework has been superseded by Webwork 2, which is used by Confluence, Bamboo and Crowd

The mappings between a URL and classes are declared in the actions.xml file (`src/webapp/WEB-INF/classes/actions.xml`). A typical element of this file looks like:

Each action element has an `alias` attribute, which is the part of the URL that you see in a web browser. The `name` element is the name of the Java class that is used by the `alias`.

Command elements are optional, and are used when several interactions belong to the same Action. A command name is specified on the URL like this:

```
SomeAction!myCommand.jspa
```

The command is implemented in a method in the Action class with the corresponding name:

```
public String doMyCommand() {

    // implement the command logic here

    return "someview";
}
```

The doExecute method is run when no command is requested i.e. the bare `/path/to/MyAction.jspa`.

Security
When adding an action to the actions.xml You must ensure the appropriate `roles-required` value is specified. This will ensure only users in the authorised role can execute the action. For actions that can be handled by application level security, such as those actions that can be given to project administrators identified through the course of administering JIRA, no role may be required, likewise setup actions and others that manage their own permissions. For some actions, the **use** role must be present. This ensures the user is logged in and identified.

The **admin** role is required for all administration actions so you must be sure when adding an action that your new action has **roles-required="admin"** or confident that it doesn't need it. The **sysadmin** role requires the user be a system administrator, and the **use** role requires that they just be logged in. (Other definitions can be found in `Permissions.java` in the source).

Actions don't care about the path of the URI, just the ActionName.jspa and optionally the !commandName suffix.

Webwork Plugins

JIRA can have new actions defined using the Webwork plugin module. These actions can also override existing actions in JIRA. However, jsp files cannot currently be bundled in the plugin jar file and have to be installed in a separate step when deploying such a plugin.

There is a Webwork Sample plugin that contains example actions and classes that can be used to understand this topic more fully.

PicoContainer and JIRA

Picocontainer

JIRA uses Picocontainer as a central object factory. Picocontainer is responsible for instantiating objects and resolving their constructor dependencies. This greatly simplifies code, in that any Picocontainer-instantiated object (eg. a Webwork action) can obtain an instance of another (eg. a Manager class) simply by requesting one in its constructor. PicoContainer will ensure each object required in the constructor is passed in (aka dependency injection). Eg. the ViewIssue action:

ViewIssue.java

```
public class ViewIssue extends AbstractViewIssue
{
    ....
    public ViewIssue(RepositoryManager repositoryManager, PermissionManager permissionManager,
TrackbackManager trackbackManager,
                     ThumbnailManager thumbnailManager, SubTaskManager subTaskManager,
IssueLinkManager issueLinkManager,
                     IssueLinkTypeManager issueLinkTypeManager, VoteManager voteManager,
WatcherManager watcherManager,
                     PluginManager pluginManager)
    {
        super(issueLinkManager, subTaskManager);
        this.trackbackManager = trackbackManager;
        this.thumbnailManager = thumbnailManager;
        this.issueLinkTypeManager = issueLinkTypeManager;
        this.pluginManager = pluginManager;
        this.pagerManager = new PagerManager(ActionContext.getSession());
        this.repositoryManager = repositoryManager;
        this.permissionManager = permissionManager;
        this.voteManager = voteManager;
        this.watcherManager = watcherManager;
    }
    ....
}
```

Non-managed classes

Classes not managed by Picocontainer (eg. workflow conditions / functions, Services and Listeners, or JSP scriptlets) can still get pico-instantiated objects statically using static methods on ComponentManager. For example:

Register new Picocontainer-managed classes

Picocontainer-managed classes need to be registered with Picocontainer. This happens automatically for Webwork actions, but other classes need to be registered manually. This is done in ComponentRegistrar's registerComponents() method:

ComponentManager.java

```
public void registerComponents(final ComponentContainer register, final boolean startupOK)
    {
...
        register.implementation(INTERNAL, EntityUtils.class);
        register.implementation(PROVIDED, AttachmentManager.class,
DefaultAttachmentManager.class);
        register.implementation(PROVIDED, AttachmentService.class,
DefaultAttachmentService.class);
        register.implementation(PROVIDED, ProjectService.class, DefaultProjectService.class);
        register.implementation(PROVIDED, FieldManager.class, DefaultFieldManager.class);
        register.implementation(PROVIDED, CustomFieldManager.class,
DefaultCustomFieldManager.class);
        register.implementation(PROVIDED, CustomFieldService.class,
DefaultCustomFieldService.class);
        register.implementation(PROVIDED, FieldScreenManager.class,
DefaultFieldScreenManager.class);
        register.implementation(INTERNAL, DefaultFieldScreenStore.class);
        register.implementation(PROVIDED, MailThreadManager.class, MailThreadManagerImpl.class);
        register.implementation(PROVIDED, CvsRepositoryUtil.class, CvsRepositoryUtilImpl.class);
        register.implementation(INTERNAL, DefaultWebAttachmentManager.class);
        register.implementation(INTERNAL, I18nBean.class);// this is a candidate for removal (may
not be used - SF 08/Oct/04)
        register.implementation(PROVIDED, I18nHelper.class, I18nBean.class);
        register.implementation(PROVIDED, I18nHelper.BeanFactory.class,
I18nBean.CachingFactory.class);
        register.implementation(INTERNAL, JiraLocaleUtils.class);
        register.implementation(PROVIDED, LocaleManager.class, DefaultLocaleManager.class);
        register.implementation(INTERNAL, PingUrlFilterer.class);
...
     }
```

Components can either by **INTERNAL** meaning that they will be available only to JIRA itself or **PROVIDED** in which case they will also be available to plugins2 plugins.

Components are generally only registered in the ComponentRegistrar, if they are required in JIRA internally. Plugin writers who wish to write to write their own components that can be injected in their plugin's classes should use the component plugin module .

Non-managed classes

Classes not managed by Picocontainer (eg. workflow conditions / functions, Services and Listeners, or JSP scriptlets) can still get pico-instantiated objects statically using static methods on ComponentManager. For example:

```
final ProjectManager projectManager = ComponentManager.getInstance().getProjectManager();
final IssueFactory = ComponentManager.getInstance().getIssueFactory();
//or
final ApplicationProperties applicationProperties =
ComponentManager.getComponentInstanceOfType(ApplicationProperties.class);
```

Sample Code

- Creating and Editing an Issue
- How to search in a plugin
- Performing Issue Operations
- Retrieving issue's links
- Working with Custom Fields

Creating and Editing an Issue

This documentation applies to JIRA version 4.0 and older. If you are using JIRA 4.1, please see Performing Issue Operations.

Retrieving an issue

You can retrieve the issue generic value using the following code:

```
// By Id
GenericValue issueGV1 = issueManager.getIssue(new Long(10000));
// By Issue Key
GenericValue issueGV2 = issueManager.getIssue("TST-1");
```

Creating a new Issue

In order to create an issue, one requires a MutableIssue object. This can be obtained via the IssueFactory class.

```
MutableIssue issueObject = issueFactory.getIssue();
```

As mentioned below you can get a handle on an IssueFactory either by Constructor Injection or explicitly via a call like:

```
ComponentManager.getInstance().getIssueFactory()
```

Here is sniplet of code that creates a new issue:

```
MutableIssue issueObject = issueFactory.getIssue();

// Regular Fields
issueObject.setProject(projectManager.getProject(new Long(10000)));
issueObject.setIssueType(constantsManager.getIssueType("1"));
issueObject.setSummary("Test Issue");
issueObject.setReporter(UserUtils.getUser("admin"));
issueObject.setAssignee(UserUtils.getUser("admin"));
issueObject.setPriority(constantsManager.getPriority("1"));
issueObject.setDescription("Test description");
issueObject.setAffectedVersions(EasyList.build(versionManager.getVersion(new Long(10000)),
versionManager.getVersion(new Long(10001))));
issueObject.setFixVersions(EasyList.build(versionManager.getVersion(new Long(10002))));
issueObject.setComponents(EasyList.build(projectManager.getComponent(new Long(10000)),
projectManager.getComponent(new Long(10001))));

// Custom Fields
CustomField customField = customFieldManager.getCustomFieldObject(new Long(10020));
issueObject.setCustomFieldValue(customField, "Test Value");

Map params = new HashMap();
params.put("issue", issueObject);
GenericValue issue = issueManager.createIssue(authenticationContext.getUser(), params);
```

This code example uses a lot of Manager objects. You can get a reference to them by declaring a dependency in the constructor of your plugin.

Classes not managed by Picocontainer (eg. workflow conditions / functions, Services and Listeners, or JSP scriptlets) can still get pico-instantiated objects statically using static methods on ComponentManager. For example:

The code above also sets a value for a custom field on the issue. Please note that the value must be an object of the type that the Custom Field expects. As the above code was using a Text custom field, a simple `java.lang.String` is fine. For more information on working with custom fields please see Working with Custom Fields.

Editing an existing Issue

The code below edits a Due Date field of an issue and sets it to 24 hours from now. A comment that is visible by everyone who has permission to see the issue is also added.

```
MutableIssue issue = issueFactory.getIssue(issueGV);
issue.setDueDate(new Timestamp(System.currentTimeMillis() + 24*60*60*1000));
Map actionParams = EasyMap.build("issue", issue.getGenericValue(), "issueObject", issue,
"remoteUser", authenticationContext.getUser());
actionParams.put("comment", "Test Comment");
actionParams.put("commentLevel", null);
ActionResult aResult = CoreFactory.getActionDispatcher().execute(ActionNames.ISSUE_UPDATE,
actionParams);
```

You can also specify a group name as the `commentLevel` parameter to restrict the visibility of comments. If you use the above code to update an issue all the relevant change history entries will be made, and an Updated Issue Event generated.

The code above created an issue object from an issue `GenericValue`.

Unable to render {include} Couldn't find a page to include called: How to retrieve an issue with an ID or an IssueKey

To learn how to update custom fields please see Working with Custom Fields.

Events

It's worth noting that in the examples above, when the issues are created or modified events are fired, and any notifications that are associated with those events will be triggered.

How to search in a plugin

Searching underwent a major change in JIRA 4.0 with the introduction of JQL. If you are trying to search in versions of JIRA older than 4.0, please see the archived documentation.

New Searching

The way a search is performed in JIRA has significantly changed. The introduction of advanced searching (JQL) necessitated a rewrite of the JIRA searching subsystem. In the process, the API for searching has also been changed (and improved) significantly. Unfortunately these changes will almost certainly mean that plugins that search will need to be updated for JIRA 4.0.

In JIRA 3.x and earlier, searching was achieved using a `SearchRequest` in combination with `SearchParameters` and `SearchSorts`. While the `SearchRequest` still continues to exist in JIRA 4.0, the `SearchParameters` have been replaced with the `Query` object.

The `Query` is JIRA's internal representation of a JQL search. It contains the search condition (i.e. the "where" clause) and the search order (i.e. the "order by" clause). The `Query` object can be created using the `JqlQueryBuilder`. For example, to create a query "find all issues assigned to either Dylan or Tokes that are unresolved and due in the next week" you would call:

Once the `Query` has been obtained, it can be used to execute a search. In JIRA 4.0 a new `SearchService` has been added to provide a central location for `Query` related operations. To run the search you can simply call `SearchService.search()` as documented on the `SearchService`. The `SearchProvider` is still available for those who need to control the finer details of searching.

The `Query` object is immutable; once it is created it cannot be changed. The `JqlQueryBuilder` represents the mutable version of a `Query` object. The `JqlQueryBuilder` can be primed with an already existing `Query` by calling `JqlQueryBuilder.newBuilder(existingQuery)`.

In JIRA 3.x the `SearchRequest` was the object that was passed to the searching system to perform a search. The `Query` object has taken over this role in JIRA 4.0; the `SearchProvider` and `SearchService` now take in `Query` objects rather than `SearchRequests`. The `SearchRequest` object has been reworked in JIRA 4.0 to significantly reduce its responsibility. For instance, ordering information is now stored on the `Query` object rather than on the `SearchRequest` object. The `SearchRequest` really represents a saved search (aka. filter). You should only need to deal with `SearchRequests` if you are working with filters. Even in this case, all searching operations need to be performed on `Query` objects by calling `SearchRequest.getQuery()`.

It is often necessary to get a URL for a particular `Query`. The `SearchService` provides the `getQueryString(query)` method for this. The method returns a parameter snippet of the form `jqlQuery=<jqlUrlEncodedQuery>`, which can be appended safely to an existing URL that points at the Issue Navigator. Note that the links that JIRA 4.0 generates are JQL based, so are incompatible with JIRA 3.x and before. Old valid JIRA 3.x URLs will still work with JIRA 4.0.

Given a `Query` object it is possible to retrieve its JQL representation by calling either `getGeneratedJqlString(query)` or `getJqlString(query)` on the SearchService. The service makes sure that any values in the `Query` that need to be escaped are handled correctly. Importantly, the `Query.toString()` method does not return valid JQL (on purpose).

The `SearchService.parseQuery(jqlString)` method can be used to turn a JQL string into its `Query` representation. The return from this method has details on any parse errors encountered.

A `Query` object, especially those parsed directly from the user, may not be valid. For example, the user may be trying to find issues in a status that does not exist. The `SearchService.validateQuery(query)` method can be used to see if a particular `Query` object is valid. Errors are returned with messages that can be displayed to the user. Executing an invalid `Query` will not result in any errors and in fact may return results. To run an invalid query, JIRA will just make the invalid conditions equate to false and run the query. For example, searching for `status = "I don't Exist" or user = bbain` will result in the query `<false> or user = bbain` actually being run.

There are some methods on the `SearchService` that we did not discuss here. Check out documentation on the `SearchService` for more information.

Examples

Here's a complete example how to obtain search results for the query "project is JRA and the reporter is the currently logged in user and custom field with id 10490 contains 'xss'":

The preceding search could have also been written using the QueryBuilder:

Plugging into JQL and what happened to my Custom Field Searchers

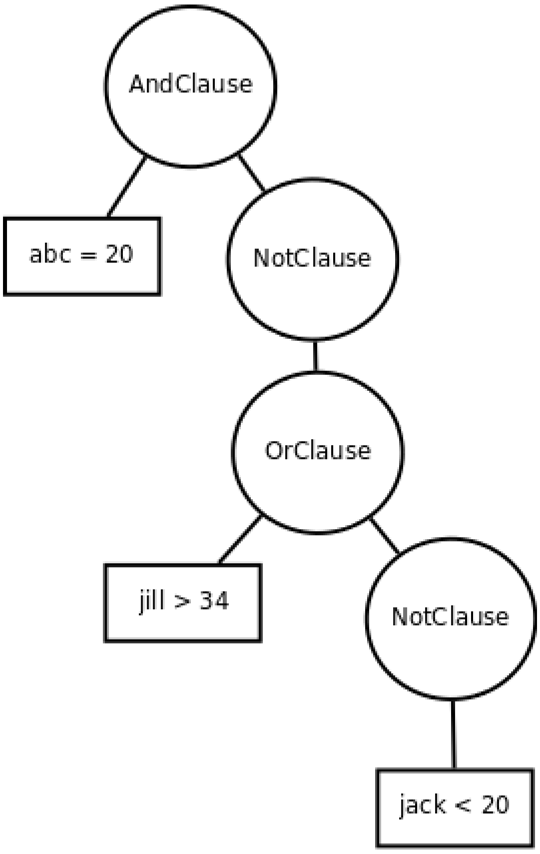
The introduction of advanced searching (JQL) necessitated a rewrite of the JIRA searching subsystem. Unfortunately these changes will certainly mean that any `CustomFieldSearchers` will need to be updated to work in 4.0.

The most fundamental change is that all JIRA 4.0 searching is implemented using JQL. A JQL search consists of two components: firstly, a number of conditions, or `Clauses`, that must be matched for an issue to be returned; and secondly, a collection of search orderings that define the order in which the issues should be returned. The `Query` object is JIRA's internal representation of a search. It is now the responsibility of the `CustomFieldSearcher` to take a relevant `Query`, validate its correctness and generate a Lucene query to find issues that match it. By doing this your custom field becomes searchable using JQL.

The `CustomFieldSearcher` and/or the custom field is also responsible for ordering results if the order in the search includes the custom field. If your custom field ordered correctly in JIRA 3.x, then it will order correctly in JIRA 4.0. While the internal representation of an order has changed in JIRA 4.0, it still uses the same interfaces to order the search results. We will not address ordering again.

What is a JQL Clause?

A custom field must process the `Clauses` from a JQL search to integrate into JQL. Each `Clause` consists of a number of conditions (e.g. `abc != 20`) combined by the AND and OR logical operators (e.g. `abc = 20 AND (jack < 20 OR jill > 34)`. In JIRA a condition is represented by a `TerminalClause`, the logical AND by an `AndClause` and a logical OR by an `OrClause`, all of which implement the `Clause` interface. Finally, the logical NOT operator can be used to negate any other `Clause`. It is represented by a `NotClause` that also implements Clause. These `Clause` objects are composed together to represent a complex conditions. For example, the condition `abc = 20 AND NOT(jill > 34 OR NOT jack < 20)` is represented by the following tree:



A `Clause` can be navigated by passing an instance of a `ClauseVisitor` to the `accept` method of a Clause. This follows the traditional visitor pattern.

The `TerminalClause` represents a `Clause` of the form "field operator value". Inside the `TermincalClause` the "operator" is one of the values from `Operator` enumeration while the "value" is represented as an `Operand`. An `Operand` can represent a single value (e.g. `field`

= "single"), a list of values (e.g. `field in ("one", 1235)`), a function (e.g. `field = function(arg1, arg2)`) or EMPTY (e.g. `field is EMPTY`). In the end, all you want is the values from the `Operand`. These can be obtained as a list of `QueryLiteral` (see below) by calling `JqlOperandResolver.getValues()`. The `JqlOperandResolver` also has the `isEmptyOperand`, `isFunctionOperand`, `isListOperand` and `isValidOperand` methods that can be used to determine the type of the `Operand`.

A `QueryLiteral` represents either a `String`, `Long` or `EMPTY` value. These three represent JQL's distinguishable types. It is up to the `CustomFieldSearcher` to convert these values into something that makes sense to it. The type of a `QueryLiteral` can be determined by calling its `isEmpty`, `getLongValue` or `getStringValue` methods. The get methods will return `null` or `false` when the method and the `QueryLiteral` type do not match.

Integrating with JQL

In JIRA 3.x a `CustomFieldSearcher` was the way to provide customised searching functionality for custom fields. In JIRA 4.0 it is still the plugin point for searching; however, the `CustomFieldSearcher` interface has changed significantly to accommodate the introduction of JQL. One of the major changes is that the `CustomFieldSearcher` must return a `CustomFieldSearcherClauseHandler` in JIRA 4.0. This object is a composition of a `ClauseValidator` and a `ClauseQueryFactory`.

The `ClauseValidator` is used by JIRA to ensure that a JQL query is valid according to the `CustomFieldSearcher`.

It is up to the validator to ensure that the operator and the value from the passed `TerminalClause` makes sense for the `CustomFieldSearcher` and its associated custom field. Any errors can be placed in the returned `MessageSet`. They should be internationalised with respect to the passed user.

The `validate` method must always return a `MessageSet` as its result. A `null` return is not allowed. A `MessageSet` is an object that contains all of the errors and warnings that occur during validation. All messages in the `MessageSet` need to be translated with respect to the passed searching user. An empty `MessageSet` indicates that no errors have occurred. A `MessageSet` with errors indicates that the JQL is invalid and should not be allowed to run. The returned messages will be displayed to the user so that any problems may be rectified. A `MessageSet` with warnings indicates that the JQL may have problems but that it can still be run. Any warning messages will be displayed above the results.

The `ClauseValidator` does **not** need to check if the passed `TerminalClause` is meant for the for it, JIRA makes sure that it only passes `TerminalClauses` that the `ClauseValidator` is meant to process. It does that by only passing `TerminalClauses` whose "field" matches one of the names the custom field must handle.

`ClauseValidators` need to respect JIRA security. A `ClauseValidator` should not leak information about JIRA objects that the searcher does not have permission to use. For example, a `ClauseValidator` should not differentiate between an object not existing and an object that the user has no permission to see. A `ClauseValidator` that behaves badly will not cause JQL to expose issues that the searcher is not allowed to see (since JQL does permission checks when it runs the filter), though it does open up an attack vector for information disclosure.

The `ClauseValidator` must be thread-safe and re-entrant to ensure correct behavior. JIRA will only create one instance of the `ClauseValidator` per custom field instance. This means that multiple threads may be calling the validator at the same time.

The `ClauseQueryFactory` is used by JIRA to generate the Lucene search for a JQL Clause.

It is the responsibility of the `ClauseQueryFactory` to create the Lucene search for the passed `TerminalClause` and `QueryCreationContext`. The generated Lucene search is returned in the `QueryFactoryResult`. The result contains the search (a Lucene Query object which is not related the the JQL Query object) and a flag to indicate whether or not the Lucene search should be negated. When set to true, JIRA will actually only match issues that do not match the returned Lucene search. For example, a `ClauseQueryFactory` may decide to implement a condition like `field != value` by returning a Lucene search that matches `field = value` and setting the flag to true. You can also implement this condition by returning a Lucene search that matches `field != value` and setting the flag to false.

The new argument here is the `QueryCreationContext`. This object contains the variables that may be necessary when creating the query. The `QueryCreationContext.getUser` method returns the user that is running the search and as such should be used to perform any security checks that may be necessary. The `QueryCreationContext.isSecurityOverriden` method indicates whether or not this function should actually perform security checks. When it returns `true`, the factory should assume that the searcher has permission to see everything in JIRA. When it returns `false`, the factory should perform regular security checks.

A `ClauseQueryFactory` should try to limit the queries so that issues that the user cannot see are excluded. Consider the query `affectsVersion = "1.0"`. The `ClauseQueryFactory` might detect that there are two versions named "1.0", one from `project1` and the other from `project2`. The factory might then notice that the user doing the search cannot see `project1`. The factory can then return a query that contains only the version from `project2`. This is mainly an efficiency concern as JIRA filters all search results to ensure users cannot see issues they are not allowed to.

The `ClauseQueryFactory` does **not** need to check if the passed `ClauseQueryFactory` is meant for it; JIRA makes sure that it only passes `TerminalClauses` that the `ClauseQueryFactory` is meant to process. It does that by only passing `TerminalClauses` whose "field" matches one of the JQL names the custom field must handle. Put simply, the `ClauseQueryFactory` must handle any passed `TerminalClause`.

The `ClauseQueryFactory` must also handle the situation when an invalid `TerminalClause` is passed to it. An invalid `TerminalClause` is one whose associated `ClauseValidator` would not validate. The `ClauseQueryFactory` must return an empty Lucene search if the passed `TerminalClause` is invalid. Most importantly, the `ClauseQueryFactory` must not throw an exception on an invalid `TerminalClause`.

A `ClauseQueryFactory` needs to be careful when implementing any of the negating operators (i.e. !=, !~, "not in"). These operators should not match what is considered empty by the custom field and `CustomFieldSearcher`. For example, the JQL query `resolution is`

EMPTY will return all unresolved issues in JIRA. The query `resolution != fixed` will only return all resolved issues that have not been resolved as "fixed", that is, it will not return any unresolved issues. The user has to enter the query `resolution != fixed or resolution is EMPTY` to find all issues that are either unresolved or not resolved as "fixed".

A `ClauseQueryFactory` also needs to consider field visibility. A `CustomFieldSearcher` should not match any issues where its associated custom field is not visible. Importantly, asking for EMPTY should not match issues where the custom field is not visible. For example, the JQL query `resolution is EMPTY` will not return issues from a project whose resolution field has been hidden. A hidden field is assumed not to exist.

There are some extra interfaces that the `CustomFieldSearcherClauseHandler` may also implement to provide optional functionality to the searching subsystem:

- ValueGeneratingClauseHandler: Gives the `CustomFieldSearcher` the ability to suggest some values during JQL entry auto-complete. This is really only useful for custom fields whose values come from an allowable finite set.
- CustomFieldClauseSanitiserHandler: Gives the `CustomFieldSearcher` the ability pre-process the query and remove sensitive information from the query before it is displayed to the passed user.
- CustomFieldClauseContextHandler: Gives the `CustomFieldSearcher` the ability to customise JIRA's query context calculation. This interface is best left alone, unexplained and unimplemented.

Performing Issue Operations

> This document applies to JIRA 4.1. If you are using an older version of JIRA please see Creating and Editing an Issue.

IssueService

JIRA 4.1 has introduced an API level object called the IssueService. This service class is used to perform create, update, delete, and transition operations in JIRA with Issue's. This services methods will make sure that when dealing with Issues that all of JIRA's business rules are enforced. This means that permissions and data validation will be checked, proper events will be fired, and notifications will be triggered.

Plugin developers wanting to perform any of these operations should use the IssueService as it abstracts the normally complicated issue operations into something a bit simpler and it will ensure that you do not put corrupted data into JIRA.

The general format of the service is that there are two methods per operation. One method, the validation method, generates a result object that is used as the parameter to the next "do" method. If validation does not pass then there will be internationalized error messages in the result object that explain what was wrong and you will be unable to invoke the "do" method with this parameter.

The "do" methods also return a result object which will contain the new state of the issue if the operation was successful and errors if something whet wrong during the action.

Getting an instance of the IssueService

You can get an IssueService object either by constructor injection or explicitly via a call like:

```
IssueService issueService = ComponentManager.getInstance().getIssueService();
```

Retrieving an issue

Issues can be retrieved using the IssueService either by id or key:

```
final IssueService.IssueResult issueResult = issueService.getIssue(remoteUser, 10000L);
final MutableIssue mutableIssue = issueResult.getIssue();
//OR
final IssueService.IssueResult issueResult = issueService.getIssue(null, "JRA-1234");
final MutableIssue mutableIssue = issueResult.getIssue();
```

IssueInputParameters - a builder that specifies issue values

To perform an operation on an issue you will use an instance of `com.atlassian.jira.issue.IssueInputParameters` as a builder that lets you tell JIRA what you want the issue to look like.

Here is an example of how to use the builder object:

```
IssueInputParameters issueInputParameters = new IssueInputParametersImpl();
        issueInputParameters.setProjectId(12345L)
            .setIssueTypeId("2");
            .setSummary("This is a summary");
            .setReporterId("joeuser");
            .setAssigneeId("otheruser");
            .setDescription("I am a description");
            .setEnvironment("I am an environment");
            .setStatusId("2");
            .setPriorityId("2");
            .setResolutionId("2");
            .setSecurityLevelId(10000L);
            .setFixVersionIds(10000L, 10001L);
```

This is used in issue creation, update, and transitions to specify new or updated values.

This builder can be used to add comments (with or without restrictions) to an issue and to set custom field values. See the javadoc for full details.

Creating a new Issue

Once you have setup the issue builder, described above, in the way you would like, then you need to get an instance of the issue service, as described above.

To validate that your issue can be created as specified you must invoke the `validateCreate` method. If there are any errors (e.g. insufficient permissions, missing required fields, referencing values that do not exist, etc) then there will be i18n'ed messages in the returned result object. See the javadoc on the method for full details.

Once you have a valid `CreateValidationResult` you can pass this object to the issue service `create` method. This will create the issue and perform all the related tasks (event publication, issue indexing, etc). The create result will only have errors if there is a severe problem with JIRA (e.g. can't communicate with the DB, the workflow has changed since you invoked validate, etc.). See the javadoc for full details.

Here is an example of how to invoke the service to create the issue we setup above:

```
IssueService issueService = ComponentManager.getInstance().getIssueService();

CreateValidationResult createValidationResult = issueService.validateCreate(user,
issueInputParameters);

if (createValidationResult.isValid())
{
    IssueResult createResult = issueService.create(user, createValidationResult);
    if (!createResult.isValid())
    {
        // Do something
    }
}
```

Editing an existing Issue

Editing an existing issue is very similar to creating an issue. You will use the same `com.atlassian.jira.issue.IssueInputParameters` as a builder that lets you tell JIRA what you want to change on the issue.

You must invoke the `validateUpdate` method with the issue id you wish to update and the `IssueInputParameters` that contains the changes that you want to apply. This will produce an `UpdateValidationResult` which you can provide to the `update` method.

If there are any errors (e.g. insufficient permissions, missing required fields, referencing values that do not exist, etc) then there will be i18n'ed messages in the returned result object. See the javadoc on the method for full details.

Once you have a valid `UpdateValidationResult` you can pass this object to the issue service `update` method. This will update the issue and perform all the related tasks (event publication, issue indexing, etc). The update result will only have errors if there is a severe problem with JIRA (e.g. can't communicate with the DB, the workflow has changed since you invoked validate, etc.). See the javadoc for full details.

Here is an example of how to invoke the service to update the summary of an issue with an id of 12345:

```
IssueInputParameters issueInputParameters = new IssueInputParametersImpl();
issueInputParameters.setSummary("I am a new summary");

IssueService issueService = ComponentManager.getInstance().getIssueService();

UpdateValidationResult updateValidationResult = issueService.validateUpdate(user, 12345L,
issueInputParameters);

if (updateValidationResult.isValid())
{
    IssueResult updateResult = issueService.update(user, updateValidationResult);
    if (!updateResult.isValid())
    {
        // Do something
    }
}
```

Transitioning an existing Issue

Transitioning an issue is much like editing an issue. You will specify an additional parameter, the transition action id, which identifies the transition the issue should make, along with the `IssueInputParameters` object specifying any values you wish to set while transitioning. You must invoke the `validateTransition` method on the issue service to generate a `TransitionValidationResult`. See the javadoc for full details.

If there are any errors (e.g. insufficient permissions, missing required fields, referencing values that do not exist, etc) then there will be i18n'ed messages in the returned result object. See the javadoc on the method for full details.

Once you have a valid `TransitionValidationResult` you can pass this object to the issue service transition method. This will transition the issue and perform all the related tasks (event publication, issue indexing, workflow post functions, etc). The transition result will only have errors if there is a severe problem with JIRA (e.g. can't communicate with the DB, the workflow has changed since you invoked validate, etc.). See the javadoc for full details.

Here is an example of how to invoke the service to transition an issue with an id of 12345 with a transition with an id of 10000, while also setting the assignee:

```
IssueInputParameters issueInputParameters = new IssueInputParametersImpl();
issueInputParameters.setAssigneeId("newdude");

IssueService issueService = ComponentManager.getInstance().getIssueService();

TransitionValidationResult transitionValidationResult = issueService.validateTransition(user,
12345L, 10000L, issueInputParameters);

if (transitionValidationResult.isValid())
{
    IssueResult transitionResult = issueService.transition(user, transitionValidationResult);
    if (!transitionResult.isValid())
    {
        // Do something
    }
}
```

Delete an existing Issue

Deleting an issue is quite easy. You just need to provide the issue service with the id of the issue you wish to delete. You must invoke the `validateDelete` method and it will generate a `DeleteValidationResult`. This can be used to invoke the `delete` method.

If there are any errors (e.g. insufficient permissions, the issue no longer exists, etc) then there will be i18n'ed messages in the returned result object. See the javadoc on the method for full details.

Once you have a valid `DeleteValidationResult` you can pass this object to the issue service `delete method`. This will delete the issue and perform all the related tasks (delete associated attachments, comments, worklogs, etc.). The delete result will only have errors if there is a severe problem with JIRA. See the javadoc for full details.

Here is an example of how to invoke the service to delete an issue with an id of 12345:

```
IssueService issueService = ComponentManager.getInstance().getIssueService();

DeleteValidationResult deleteValidationResult = issueService.validateDelete(user, 12345L);

if (deleteValidationResult.isValid())
{
    ErrorCollection deleteErrors = issueService.delete(user, deleteValidationResult);
    if (deleteResult.hasAnyErrors())
    {
        // Do something
    }
}
```

Issue Operations without validation

If you for some reason do not want to use the `IssueService` class, then you should look at the javadoc for the `IssueManager` class for create, delete, and update, and also at the `WorkflowManager` for the transition.

However we highly recommend using the `IssueService` class for these operations since there is a lot of business logic associated with issue operations.

Retrieving issue's links

The following code sample iterates over a list of issues and for each issue retrieves its linked issues. This code can be useful if you are creating a custom report that shows linked issues.

Remember that each link has a direction and a type. Therefore the issues in the `Link Collection` are grouped by link type and direction.

```
// A list of GenericValues representing issues
List issues = ...
for (Iterator iterator = issues.iterator(); iterator.hasNext();)
{
    GenericValue issue = (GenericValue) iterator.next();
    // Retrieve a collection of all linked issues and their link types
    LinkCollection linkCollection = getIssueLinkManager().getLinkCollection(issue,
authenticationContext.getUser());
    Set linkTypes = linkCollection.getLinkTypes();
    if (linkTypes != null)
    {
        // For each link type
        for (Iterator iterator1 = linkTypes.iterator(); iterator1.hasNext();)
        {
            IssueLinkType linkType = (IssueLinkType) iterator1.next();
            // Get the outward linked issues
            List outwardIssues = linkCollection.getOutwardIssues(linkType.getName());
            if (outwardIssues != null)
            {
                for (Iterator iterator2 = outwardIssues.iterator(); iterator2.hasNext();)
                {
                    GenericValue outwardIssue = (GenericValue) iterator2.next();
                    System.out.println("outwardIssue = " + outwardIssue);
                }
            }
            // And the inward linked issues
            List inwardIssues = linkCollection.getInwardIssues(linkType.getName());
            if (inwardIssues != null)
            {
                for (Iterator iterator2 = inwardIssues.iterator(); iterator2.hasNext();)
                {
                    GenericValue inwardIssue = (GenericValue) iterator2.next();
                    System.out.println("inwardIssue = " + inwardIssue);
                }
            }
        }
    }
}
```

One way to retrieve a list of issues is to make and run a Search Request.

Please note that the code above uses `JiraAuthenticationContext` to retrieve the remote user. The easiest way to get access to an instance of the JiraAuthenticationContext is to declare it as a dependency in the constructor of your class. The process is explained in more detail here.

Working with Custom Fields

It is fairly straight forward to programmatically read or update a value of a custom field in JIRA.

Here is a code snapshot that reads a value and then updates it:

```
CustomFieldManager customFieldManager =
ComponentManager.getInstance().getFieldManager().getCustomFieldManager();
CustomField customField = customFieldManager.getCustomFieldObject(new Long(10040));

// Obtain the FieldLayoutItem associated with the custom field for this issue
FieldLayoutItem fieldLayoutItem =
ComponentManager.getInstance().getFieldLayoutManager().getFieldLayout(issue).getFieldLayoutItem(custo
Read a value
Object value = customField.getValue(issue);
System.out.println("Custom Field Value: " + value);

// Create a modified value object with the old value and the new value
ModifiedValue modifiedValue = new ModifiedValue(value, "Option 2");

// Update the value
customField.updateValue(fieldLayoutItem, issue, modifiedValue, new DefaultIssueChangeHolder());
// Show updated value
System.out.println("Custom Field Value: " + customField.getValue(issue));
```

Please note the type of the `value` object depends on the custom field in question. For text and select list custom fields this is a simple String (as you can see above). For a Multi-Select Custom Field it is a `java.util.List` of Strings.

Note that the CustomField object was retrieved using its id, which is unique for each custom field. The easiest way to determine the id of a custom field is to navigate to the View Custom Fields page in the Administration section and hover over one of the "Operation" links next to the custom field. The id will be one of the URL parameters in the link.

Here is another example which reads the values of a Cascading Select List custom field:

```
CustomFieldManager customFieldManager = ManagerFactory.getCustomFieldManager();
CustomField customField = customFieldManager.getCustomFieldObject(new Long(10010));
CustomFieldParams cfParams = (CustomFieldParams) customField.getValue(issue);

// Get the 1st level value
Collection value = (List) cfParams.getValuesForKey(null);
Option option = (Option) value.iterator().next();
System.out.println("1st level value = " + option.getValue());

// Get the 2nd level value
value = (List) cfParams.getValuesForKey("1");
option = (Option) value.iterator().next();
System.out.println("2nd level value = " + option.getValue());
```

Developer Tutorials

Developer Tutorials

- Jelly Examples
- JIRA RPC Services — This page provides a starting point for all your remote procedure call needs.
  - Creating a SOAP Client — This document contains notes on how to perform various operations (e.g. creating issues) via a Java SOAP client.
    - Remote API (SOAP) Examples
  - Creating a XML-RPC Client — In this tutorial, we write a basic XML-RPC client (using Apache XML-RPC) that logs in, retrieves projects and then log out again. A Python client is also demonstrated.
    - Remote API (XML-RPC) Examples
  - Enabling the RPC plugin
  - JIRA XML-RPC Overview
  - Frequently Asked RPC Questions and Known Issues
- Adding your own email handling classes — In JIRA, emails may be periodically fetched (eg. via POP or IMAP) and processed (eg. create a new issue, create a comment). You can add new ways of processing emails by implementing the MessageHandler interface in JIRA (or subclassing one if its implementations).
- Modifying JIRA Templates and JSPs
  - Adding Custom Fields to Email
  - Adding Custom Field to Issue Summary
  - Adding JavaScript to all pages for Google Analytics
  - Contents of the Velocity Context
  - Creating a Custom Release Notes Template Containing Release Comments
  - Customising interface based on user's role
  - Customising JIRA Excel Output
  - Customizing text
  - Mapping custom events to new email templates
  - Velocity Context for Email Templates
- JIRA Custom Installer Guide
- JIRA Plugin Tutorials
  - Available Permissions
  - How to create a new Custom Field Type
  - How to create Custom Workflow Elements for JIRA 3
    - Custom Workflow Condition Skeleton
    - Keep Issue Open Until Everything Blocking It Is Closed
- How to create a JIRA Report
- JIRA REST API (Alpha) Tutorial

See Also

- Plugin Tutorial - Writing Gadgets for JIRA

Jelly Examples

Jelly is a scripting and templating language from Apache's Jakarta project.

We use it within JIRA to import and manipulate data.

This page contains example scripts highlighting the more advanced capabilities of Jelly.

Retrieving a list of all users

Jelly can actually create and invoke methods on Java objects. This script utilizes this to retrieve a list of all the users in JIRA:

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib"
xmlns:core="jelly:core">

<core:invokeStatic className="com.opensymphony.user.UserManager"method="getInstance"
var="instance"/>
<core:invoke on="${instance}" method="getUsers" var="users"/>

<core:forEach var="user" items="${users}">
//do something with ${user}
</core:forEach>
</JiraJelly>
```

Retrieving all users from a group

Like the above script, this script creates an instance of the UserManager. It then retrieves all the users from a group.

```
<JiraJelly xmlns:jira="jelly:com.atlassian.jira.jelly.enterprise.JiraTagLib" xmlns:j="jelly:core"
xmlns:util="jelly:util">
<j:invokeStatic className="com.opensymphony.user.UserManager" method="getInstance"
var="instance"/>
<j:invoke on="${instance}" method="getGroup" var="grp">
<j:arg type="java.lang.String" value="thegroupname"/>
</j:invoke>
<j:invoke on="${grp}" method="getUsers" var="users"/>
</JiraJelly>
```

Timeout an email to a new state with auto-response

See Jelly Escalation For Support.

JIRA RPC Services

JIRA ships with an RPC plugin which enables limited remote access to JIRA. It is available through SOAP and XML-RPC interfaces. We recommend using the SOAP interface when possible as it is more complete and will be our primary focus in the future. This page provides a starting point for all your remote procedure call needs.

You can find the latest news on the RPC plugin on the Studio Plugins Instance. The full source of the plugin is available and you are free to modify and extend the source. We'd also be happy to accept code contributions to the project, as Simon Mittag has done in the past. Check out the RPC Endpoint Plugin Module for more information.

REST

All Atlassian products, including JIRA, are gradually moving to REST as the preferred remote access method. Some useful pages for more information include Writing Rest Services and the REST plugin tutorial.

SOAP Service

SOAP is the preferred method for remote method calls in JIRA and is the most frequently updated. The JIRA SOAP service is backed by Apache Axis, an open-sourced Java web services framework. If you're familiar with SOAP, ensure that RPC is enabled and point your stub generator to the **`/rpc/soap/jirasoapservice-v2?wsdl`** path of your JIRA install (e.g. http://jira.atlassian.com/rpc/soap/jirasoapservice-v2?wsdl) and you're away. For those less familiar with SOAP, you should first check out the SOAP tutorial.

For the latest information on what remote methods are available, you should check out the latest javadoc for JiraSoapService.

- SOAP tutorial
- Latest javadoc for JiraSoapService

Check out the Command Line Interface for an existing remote scripting tool.

XML RPC Service

XML-RPC can also be used as an alternative where SOAP is unavailable. You can find some background information on XML-RPC by reading the overview. Start building your own client by following the instructions in the tutorial. The XML-RPC interface is backed by the SOAP interface, and will usually have a subset of methods from the SOAP interface.

For the latest information on what remote methods are available, you should check out the latest javadoc for XmlRpcService . Method calls should be prefixed with **`jira1.`** and be made to the URL **`/rpc/xmlrpc`** of your install. The javadoc will often refer to "hashtables with fields from RemoteObject". To the hashtable will contain keys that map to the fields available through reflection of the particular RemoteObject. For example, the object `RemoteVersion`, has the methods getReleaseDate(), getSequence(), isArchived() and isReleased(). This will be converted into a Hashtable with keys releaseDate, sequence, archived and released.

- JIRA XML-RPC Overview
- Creating a XML-RPC Client
- Latest javadoc for XmlRpcService

Creating a SOAP Client

JIRA ships with the RPC plugin which enables remote access through XML-RPC and SOAP. This document contains notes on how to perform various operations (e.g. creating issues) via a Java SOAP client.

Remotely exposed operations.

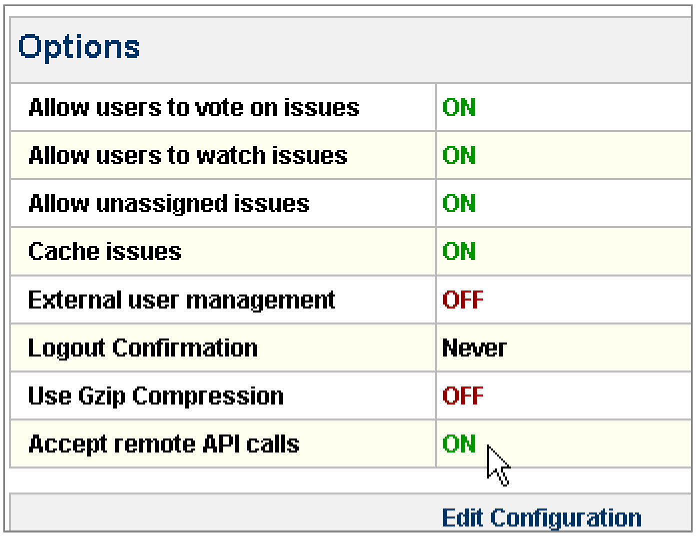
Before you begin, check out the javadoc for the RPC plugin, specifically JiraSoapService, which has information on all the methods available through SOAP and and XML-RPC. Also check the list of RPC bugs, listed on the RPC plugin page, to see that none will affect you.

Please note that the SOAP service respects the permissions and screen configurations that are set up in JIRA. For example, if you have configured JIRA so that the screen for a given issue type does not include a 'Summary' field, then you will not be permitted to set a value for the 'Summary' field through the SOAP request.

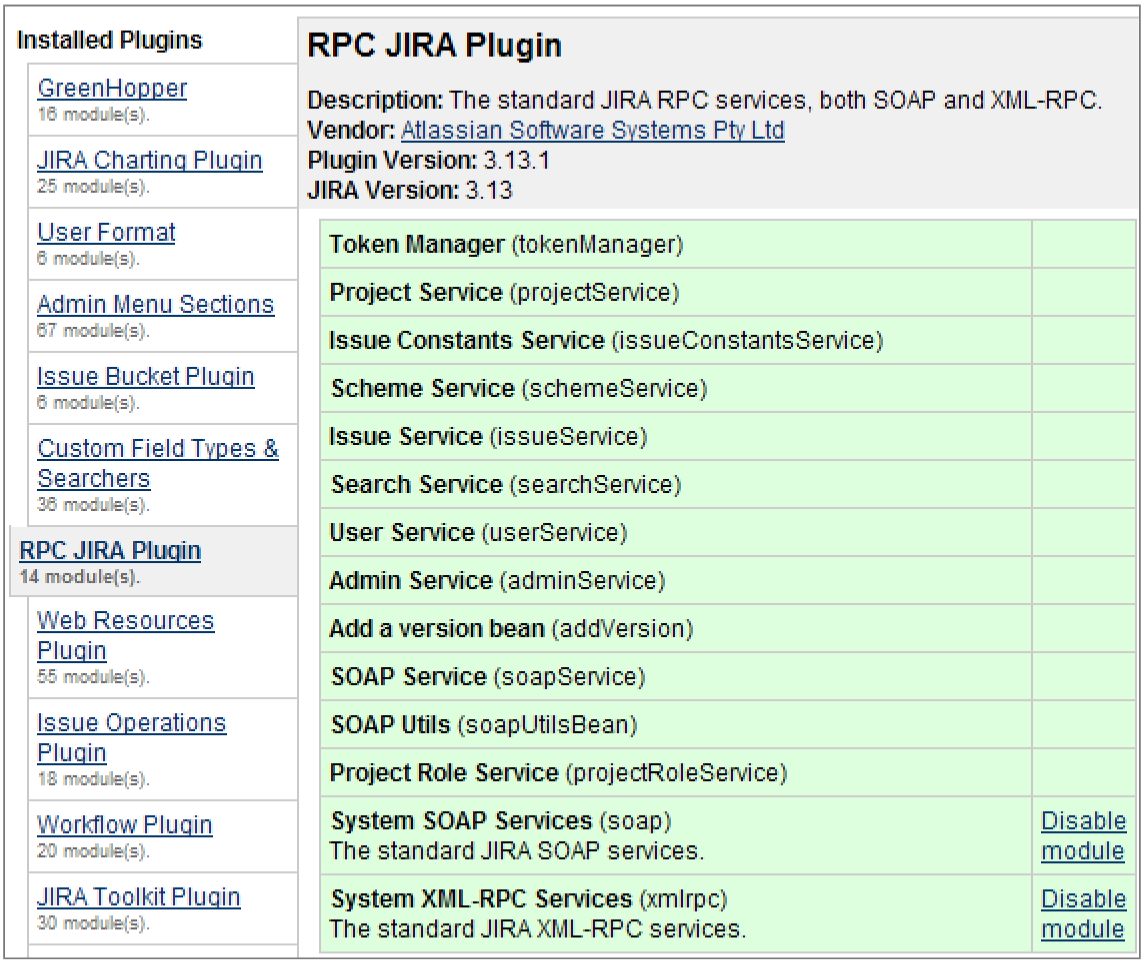
Some of our users have recommended SOAPUI (http://www.soapui.org/).
It allows you to import the WSDL from JIRA and it then displays all remote calls and all sorts of details and testing possibilities. Check it out!
Thanks goes to Karl-Koenig Koenigsson for this info.

Enable the RPC plugin

To invoke JIRA operations remotely, you should ensure that the RPC plugin is enabled on the JIRA installation you are targeting. If you simply want to create a client to http://jira.atlassian.com/ then you can skip this step. First you need to check if the Accept Remote API Calls has been enabled in '**General Configuration**' under '**Global Settings**' in the left-hand menu:



Then you need to enable the JIRA RPC Plugin in '**Plugins**' under '**System**' in the left-hand menu:



If the plugin does not appear as above then your RPC jar has not been properly installed. Download the jar from the repository and copy it to the `atlassian-jira/WEB-INF/lib` folder of your JIRA installation. Perform a restart and your plugin should appear.

Your server should now be ready to accept remote procedure calls.

WSDL descriptor

The SOAP WSDL from JIRA is not compatible with Axis2 and Xfire. Please see JRA-12152.
There is also an unrelated patch for Axis1. Please download it from JRA-20351.

Regardless of the language or SOAP API used, you will need the WSDL descriptor for your JIRA installation. This is found at http://`your_installation`/rpc/soap/jirasoapservice-v2?wsdl. For instance, http://jira.atlassian.com's WSDL file is:

http://jira.atlassian.com/rpc/soap/jirasoapservice-v2?wsdl

Sample Java SOAP client

Check out the latest demo SOAP client distribution from the Atlassian public repository. This contains a Maven 2 project configured to use Apache Axis, and a sample Java SOAP client which creates test issues in http://jira.atlassian.com.
Read the README.txt in the root directory for further instructions.

To give you an idea of what a Java SOAP client looks like, here is the sample client's code for creating issues:

The various external classes (JiraSoapService etc) are the classes generated automatically from WSDL by the Maven Axis plugin.

Python (SOAPPy) client

The following code demonstrates how to create an issue and comment (on http://jira.atlassian.com) using python:

```
#!/usr/bin/python

# Sample Python client accessing JIRA via SOAP. By default, accesses
# http://jira.atlassian.com with a public account. Methods requiring
# more than basic user-level access are commented out. Change the URL
# and project/issue details for local testing.
#
# Note: This Python client only works with JIRA 3.3.1 and above (see
# http://jira.atlassian.com/browse/JRA-7321)
#
# Refer to the SOAP Javadoc to see what calls are available:
#
http://docs.atlassian.com/software/jira/docs/api/rpc-jira-plugin/latest/com/atlassian/jira/rpc/soap/J
SOAPpy
import SOAPpy.Types
import getpass,
import datetime
import time

soap = SOAPpy.WSDL.Proxy('http://jira.atlassian.com/rpc/soap/jirasoapservice-v2?wsdl')
#soap = SOAPpy.WSDL.Proxy('http://localhost:8090/jira/rpc/soap/jirasoapservice-v2?wsdl')

#jirauser = raw_input("Username for jira [fred]: ")
#if jirauser == "":
#    jirauser = "fred"
#
#passwd = getpass.getpass("Password for %s: " % jirauser)
#passwd="fredspassword"

jirauser='soaptester'
passwd='soaptester'

# This prints available methods, but the WSDL doesn't include argument
# names so its fairly useless. Refer to the Javadoc URL above instead
#print 'Available methods: ', soap.methods.keys()

def listSOAPmethods():
 for key in soap.methods.keys():
     print key, ': '
     for param in soap.methods[key].inparams:
  print '\t', param.name.ljust(10), param.type
     for param in soap.methods[key].outparams:
  print '\tOut: ', param.name.ljust(10), param.type


auth = soap.login(jirauser, passwd)

issue = soap.getIssue(auth, 'TST-3410')
print "Retrieved issue:", issue
print

baseurl = soap.getServerInfo(auth)['baseUrl']
newissue = soap.createIssue(auth, {'project': 'TST', 'type': '1', 'summary': 'Issue created with
Python!'})
print "Created %s/browse/%s" % (baseurl, newissue['key'])

print "Adding comment.."
soap.addComment(auth, newissue['key'], {'body': 'Comment added with SOAP'})

print 'Updating issue..'
soap.updateIssue(auth, newissue['key'], [
  {"id": "summary", "values": ['[Updated] Issue created with Python'] },

  # Change issue type to 'New feature'
  {"id":"issuetype", "values":'2'},

  # Setting a custom field. The id (10010) is discoverable from
  # the database or URLs in the admin section

  {"id": "customfield_10010", "values": ["Random text set in updateIssue method"] },

  {"id":"fixVersions", "values":['10331']},
  # Demonstrate setting a cascading selectlist. See
                #
http://confluence.atlassian.com/display/JIRA/Frequently+Asked+RPC+Questions+and+Known+Issues#Frequent
```

```
{"id": "customfield_10061", "values": ["10098"]},
  {"id": "customfield_10061:1", "values": ["10105"]},
  {"id": "duedate", "values": datetime.date.today().strftime("%d-%b-%y")}

  ])

print 'Resolving issue..'
# Note: all fields prompted for in the transition (eg. assignee) need to
# be set, or they will become blank.
soap.progressWorkflowAction(auth, newissue['key'], '2', [
  {"id": "assignee", "values": "jefft" },
  {"id":"fixVersions", "values":['10331']},
  {"id": "resolution", "values": "2" }
  ])


# Re. 'assignee' above, see http://jira.atlassian.com/browse/JRA-9018

# This works if you have the right permissions
#user = soap.createUser(auth, "testuser2", "testuser2", "SOAP-created user", "newuser@localhost")
#print "Created user ", user

#group = soap.getGroup(auth, "jira-developers")
# Adding a user to a group. Naming the parameters may be required (see
# http://jira.atlassian.com/browse/JRA-7971). You may experience other
# problems (see http://jira.atlassian.com/browse/JRA-7920).
#soap.addUserToGroup(token=auth, group=group, user=user)

# Adding a version to a project.
dateObj = SOAPpy.Types.dateTimeType((int(2011), int(1), int(10), int(time.timezone/3600), 0, 0))
soap.addVersion(auth, "TST", remoteVersion = {'name': 'Version 1', 'releaseDate': dateObj})
```

```
print "Done!"

# vim set textwidth=1000:
```

Python's SOAP support is considerably less well developed than Java's, and some SOAP calls may fail (e.g. addUserToGroup()). Also as SOAPpy is rather dated now, see the comments below for details of using python-suds instead.

Ruby client

Ben Walding (Codehaus) reports:

> *I've worked with the developers of SOAP4R and they've made the Ruby SOAP libraries work with JIRA. It was the client libraries at fault - they were ignoring the WSDL and sending integers instead of longs.*
>
> *A gem for marginally simpler access to JIRA can be found at http://jira4r.rubyhaus.org/ (there is also a confluence gem at http://confluence4r.rubyhaus.org/*
>
> *The gems take care of authentication and provide helper methods where the Jira / Confluence interfaces are missing useful methods or behave strangely (eg. provides a getProject; provides a getGroup that doesn't throw exceptions).*

There is a JIRA4R sample Ruby script available in the samples (thanks Jonathan Zhang). If you have any Ruby samples to share, please let us know so we can include them into the repository as well.

See also

Creating a XML-RPC Client

Remote API (SOAP) Examples

More code examples can be found in the SVN repository. You may also try looking for them in the jira-user and jira-developer mailing list (or forum).

Perl

Logging In

```
#!/usr/bin/perl

use SOAP::Lite;
use Data::Dumper;

my $soap = SOAP::Lite->proxy("http://localhost:8090/rpc/soap/jirasoapservice-v2?wsdl");
my $auth = $soap->login("admin", "admin");
```

Creating Issue

```
$issueMap = {"project" => SOAP::Data->type(string => "YQ"),
             "components" => [{"id" => SOAP::Data->type(string => "10010")}],
             # this is definitely not working as "10010" will be 'autotyped' to int:
             # "components" => [{"id" => "10010"}],
             "type" => SOAP::Data->type(string => "1"),
             "summary" => SOAP::Data->type(string => "Issue created via Perl/SOAP")
            };

my $issue = $soap->createIssue($auth->result(), $issueMap);
```

Python

Logging In

```
#!/usr/bin/python

import SOAPpy, getpass, datetime, array, base64, random
from SOAPpy import Types
soap = SOAPpy.WSDL.Proxy('http://localhost:8090/rpc/soap/jirasoapservice-v2?wsdl')
jirauser='admin'
passwd='admin'

auth = soap.login(jirauser, passwd)
```

Adding User to Group

```
group = soap.getGroup(auth, 'foo')
user = soap.getUser(auth, 'admin')
user = {'name': user['name']} # without this line, you might be facing some funny problems. see
JRA-7920.
soap.addUserToGroup(auth, group, user)
```

Listing Workflow Actions and associated Fields and Progressing

```
# List
actions = soap.getAvailableActions(auth, 'MYC-28')
print "actions:"
for action in actions:
  print action
  fields = soap.getFieldsForAction(auth, 'MYC-28', action['id'])
  for field in fields:
    print field;
  print "-----"

# Progress
issue = soap.progressWorkflowAction(auth, 'MYC-28', '5', [{'id': 'resolution', 'values': ['2']},
{'id': 'assignee', 'values': ['admin']}, {'id': 'comment', 'values': ['testo!']}])
```

Ruby

```
#!/usr/bin/env ruby

require 'rubygems'
gem 'soap4r' # The soap4r gem is actually an updated version of the built-in SOAP driver, so we
need to override it.
require 'soap/wsdlDriver'

soap =
SOAP::WSDLDriverFactory.new('http://localhost:8080/rpc/soap/jirasoapservice-v2?wsdl').create_rpc_driv
Login.
token = soap.login('admin', 'admin')

# Create an issue.
issue_map = {
  :type => "1",
  :project => "TEST",
  :summary => "Created with soap4r",
  :description => "This is the description.",
  :assignee => "admin"
  };
issue = soap.createIssue(token, issue_map);

# Close the issue with a resolution of "Fixed".
action = "2" # 2 = "Close". Note how this is actually a string, not an integer.
resolution_type = "1" # 1 = "Fixed". Also a string.
issue = soap.progressWorkflowAction(token, issue.key, action, [{ :id => "resolution", :values =>
resolution_type }])
```

Creating a XML-RPC Client

JIRA 3.0 and above ships with the JIRA XML-RPC Plugin which enables remote access through XML-RPC and SOAP. Utilising this feature with XML-RPC couldn't be much easier with some help from the Apache XML-RPC package. In this tutorial, we write a basic XML-RPC client (using Apache XML-RPC) that logs in, retrieves projects and then log out again. A Python client is also demonstrated.

You may also be interested in the Creating a SOAP Client (more methods are exposed via SOAP than XML-RPC).

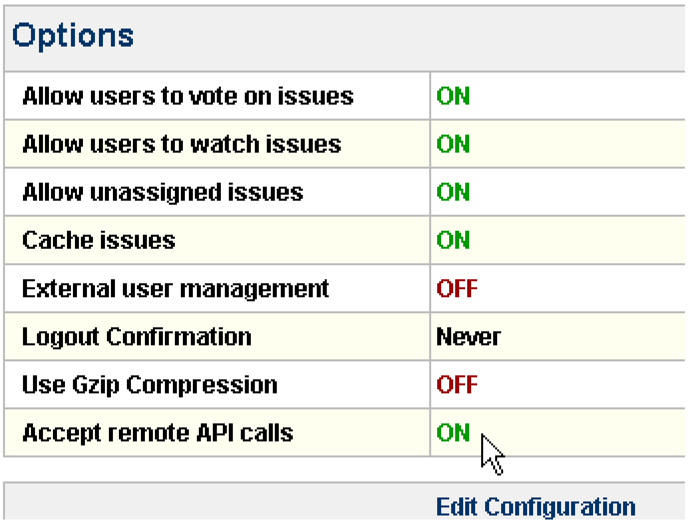
> **Getting the latest XML-RPC client**
> You can download the latest XML-RPC client with the [JIRA Plugin Development Kit]

Enabling the RPC plugin

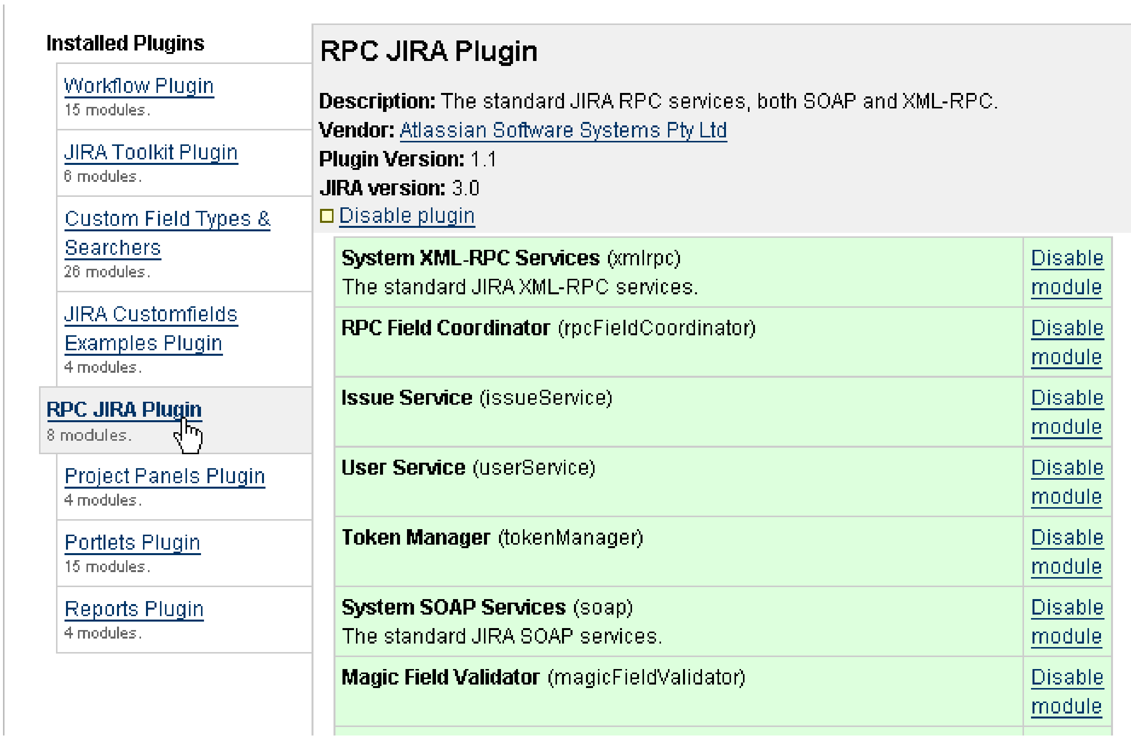
The methods exposed via XML-RPC are listed in the RPC plugin Javadoc for the XmlRpcService class. The JIRA XML-RPC API Spec has more information (though not guaranteed to be up-to-date).

To run the Java client in this tutorial, you'll need to download the Apache XML-RPC libraries and make it available in your classpath.

You should also ensure that the XML-RPC plugin has is enabled on the JIRA installation you are targeting. If you simply want to create a client to http://jira.atlassian.com/ then you can skip this step. First you need to check if the Accept Remote API Calls has been enabled in the General Configuration tab under Global Settings.



Then you need to enable the JIRA RPC Plugin as below.



> ⚠ If the plugin does not appear as above then your XML-RPC jar has not been properly installed. Download the jar from the repository and copy it to the `atlassian-jira/WEB-INF/lib` folder of your JIRA installation. Perform a restart and your plugin should appear

Now that your server is ready to accept remote procedure calls, we begin creating a Java XML-RPC client.

Python XML-RPC client

XML-RPC in Python is very easy. Here is a sample client that creates test issues on http://jira.atlassian.com:

```
#!/usr/bin/python

# Sample Python client accessing JIRA via XML-RPC. Methods requiring
# more than basic user-level access are commented out.
#
# Refer to the XML-RPC Javadoc to see what calls are available:
#
http://docs.atlassian.com/software/jira/docs/api/rpc-jira-plugin/latest/com/atlassian/jira/rpc/xmlrpc
xmlrpclib

s = xmlrpclib.ServerProxy('http://jira.atlassian.com/rpc/xmlrpc')
#s = xmlrpclib.ServerProxy('http://192.168.0.87:8080/rpc/xmlrpc')
auth = s.jira1.login('xmlrpctester', 'xmlrpctester')

newissue = s.jira1.createIssue(auth, { 'project': 'TST', 'type': 2,
        'summary': 'Issue created via XML-RPC', 'description': 'Created with a Python client'})

print "Created %s/browse/%s" % (s.jira1.getServerInfo(auth)['baseUrl'], newissue['key'])

print "Commenting on issue.."
s.jira1.addComment(auth, newissue['key'], 'Comment added with XML-RPC')

print "Modifying issue..."
s.jira1.updateIssue(auth, newissue['key'], {
                "summary": ["[Updated] issue created via XML-RPC"],

                # Setting a custom field. The id (10010) is discoverable from
                # the database or URLs in the admin section

                "customfield_10010": ["Random text set in updateIssue method"],

                # Demonstrate setting a cascading selectlist:
                "customfield_10061": ["10098"],
                "customfield_10061_1": ["10105"],
                "components": ["10370"]

                })


print "Done!"
```

Java client

The goal of this tutorial is to create a client that makes three simple remote calls to JIRA. Here we login, retrieve the project information and then logout again. You can take a look at the full source code here (xmlrpc-2.x) or here (xmlrpc-3.x).

The first step is to configure your details.

```
public static final String JIRA_URI  = "http://jira.atlassian.com";
public static final String RPC_PATH  = "/rpc/xmlrpc";
public static final String USER_NAME = "enteryourlogin@atlassian.com";
public static final String PASSWORD  = "yourpassword";
```

All XML-RPC calls are invoked at with the path `/rpc/xmlrpc` by default. You need to configure your username and password appropriately.

```
// Initialise RPC Client
XmlRpcClient rpcClient = new XmlRpcClient(JIRA_URI + RPC_PATH);

// Login and retrieve logon token
Vector loginParams = new Vector(2);
loginParams.add(USER_NAME);
loginParams.add(PASSWORD);
String loginToken = (String) rpcClient.execute("jira1.login", loginParams);
```

Method calls to JIRA via XML-RPC need to be prefixed with "**`jira1.`**". Parameters to methods are passed as sequenced Objects in a Vector. In the above code, we log into jira.atlassian.com. We receive back a *`loginToken`* which will need to be passed to all subsequent method calls.

```
// Retrieve projects
Vector loginTokenVector = new Vector(1);
loginTokenVector.add(loginToken);
List projects = (List)rpcClient.execute("jira1.getProjectsNoSchemes", loginTokenVector);

// Print projects
for (Iterator iterator = projects.iterator(); iterator.hasNext();)
{
    Map project =  (Map) iterator.next();
    System.out.println(project.get("name") + " with lead " + project.get("lead"));
}
```

The RPC client calls the getProjectsNoSchemes() method passing the loginToken. This returns with a Vector of *projects* which are represented by `HashTable` objects. For information on what methods are available as well as what properties are available on returned projects, you'll again need to look at the JIRA XML-RPC API Spec.

```
// Log out
Boolean bool = (Boolean) rpcClient.execute("jira1.logout", loginTokenVector);
System.out.println("Logout successful: " + bool);
```

Lastly, we log out of the system, again passing the loginToken in a Vector form.

There it is! A simple client for JIRA XML-RPC. If you wish to extend or customize the JIRA XML-RPC plugin itself, you can download the latest source from the repository.

Perl Client

Here's an XMLRPC client that uses the `XMLRPC::Lite` module (distributed with ActivePerl and available for free on CPAN).

```
#!/usr/bin/perl

# toy jira perl client using XMLRPC
# logs in, creates an issue
# handles failure or prints issue fields
# logs out.

use strict;
use warnings;

use XMLRPC::Lite;
use Data::Dumper;

my $jira = XMLRPC::Lite->proxy('http://localhost:8080/jira/rpc/xmlrpc');
my $auth = $jira->call("jira1.login", "admin", "admin")->result();
my $call = $jira->call("jira1.createIssue", $auth, {
    'project' => 'CEL',
    'type' => 2,
    'summary' => 'Issue created via XMLRPC',
    'assignee' => 'admin',
    'fixVersions' => [{'id' => '10000'},{'id' => '10001'}],
    'customFieldValues' => [{'customfieldId' => 'customfield_10000', 'values' => ['Blah',
'Bling']}],
    'description' => 'Created with a Perl client'});
my $fault = $call->fault();
if (defined $fault) {
    die $call->faultstring();
} else {
    print "issue created:\n";
    print Dumper($call->result());
}
$jira->call("jira1.logout", $auth);
```

`XMLRPC::Lite` is poorly documented, using it for this simple example required reading the code - it is not advised for newbie perl hackers.

See also

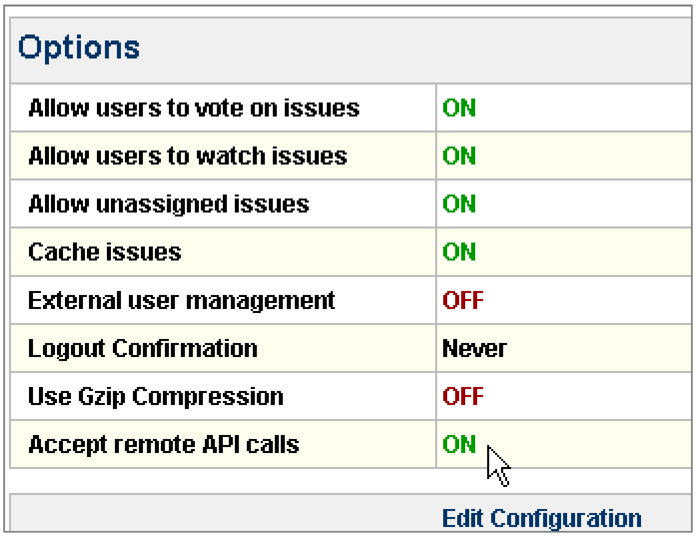
Creating a SOAP Client

Remote API (XML-RPC) Examples

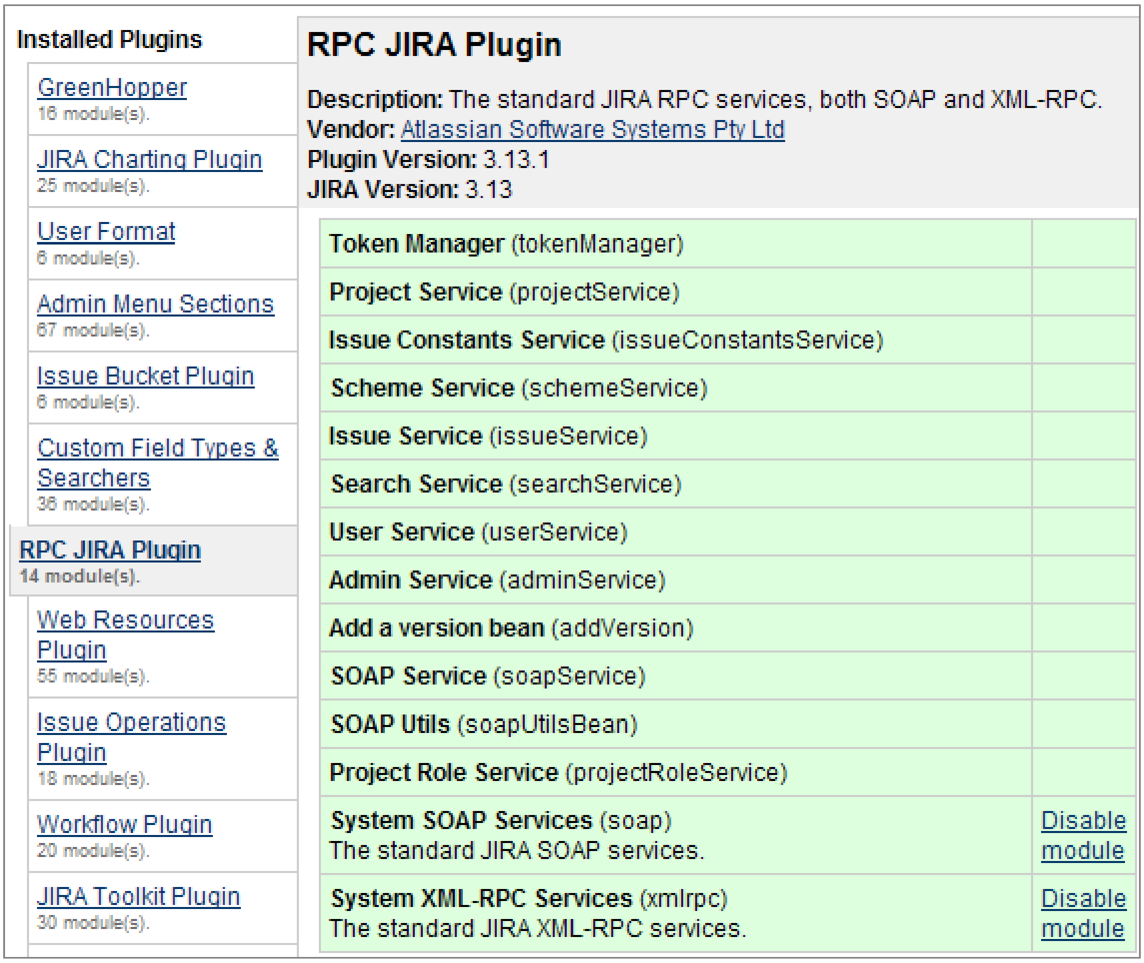
More code examples can be found in the SVN repository. You may also try looking for them in the jira-user and jira-developer mailing list (or forum).

Enabling the RPC plugin

To invoke JIRA operations remotely, you should ensure that the RPC plugin is enabled on the JIRA installation you are targeting. If you simply want to create a client to http://jira.atlassian.com/ then you can skip this step. First you need to check if the Accept Remote API Calls has been enabled in '**General Configuration**' under '**Global Settings**' in the left-hand menu:



Then you need to enable the JIRA RPC Plugin in '**Plugins**' under '**System**' in the left-hand menu:



⚠ If the plugin does not appear as above then your RPC jar has not been properly installed. Download the jar from the repository and copy it to the `atlassian-jira/WEB-INF/lib` folder of your JIRA installation. Perform a restart and your plugin should appear.

Your server should now be ready to accept remote procedure calls.

JIRA XML-RPC Overview

- Introduction
- Methods
- Data Objects
- Notes

Introduction

This page provides basic documentation on JIRA's XML-RPC capabilities. For latest methods available through the XML-RPC please refer to the latest javadoc for XmlRpcService.

> JIRA supports both SOAP and XML-RPC. We recommend the SOAP interface as it is more complete.

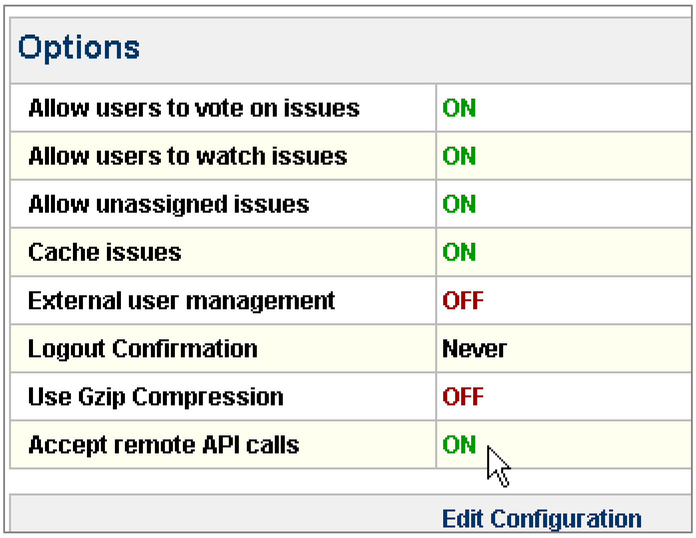
Notes:

- The URL for XML-RPC requests is http://`jira-install`/rpc/xmlrpc.
- All methods must be prefixed by `jira1` - to indicate this is version 1 of the API. We might introduce another version in the future.
- All keys in structs are case sensitive.
- All strings are passed as UTF-8, and not ASCII per the XML-RPC
- When reading the APInywhere you see the word Vector, you can interchange it with "Array" or "List" depending on what language you prefer. This is the array data type as defined in the XML-RPC spec.
- Anywhere you see the word Hashtable, you can interchange it with "Struct" or "Dictionary" or "Map" depending on what language you prefer. This is the struct data type as defined in the XML-RPC spec.
- The default XML-RPC session lifetime is 60 minutes, it will be editable in the future.

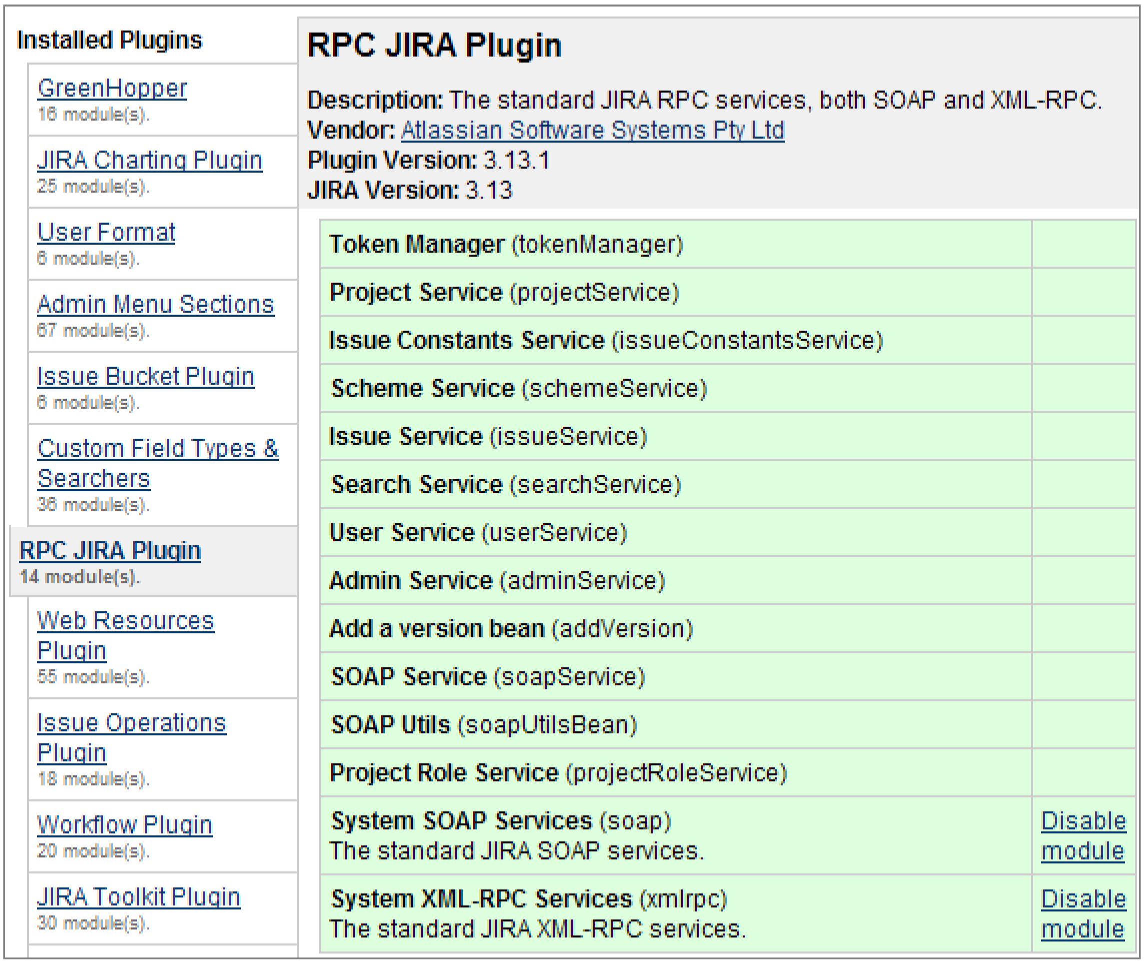
You may also wish to see the Creating a XML-RPC Client or Creating a SOAP Client if you're interested in creating a JIRA remote client.

Enable the RPC plugin

To invoke JIRA operations remotely, you should ensure that the RPC plugin is enabled on the JIRA installation you are targeting. If you simply want to create a client to http://jira.atlassian.com/ then you can skip this step. First you need to check if the Accept Remote API Calls has been enabled in '**General Configuration**' under '**Global Settings**' in the left-hand menu:



Then you need to enable the JIRA RPC Plugin in '**Plugins**' under '**System**' in the left-hand menu:



⚠ If the plugin does not appear as above then your RPC jar has not been properly installed. Download the jar from the repository and copy it to the `atlassian-jira/WEB-INF/lib` folder of your JIRA installation. Perform a restart and your plugin should appear.

Your server should now be ready to accept remote procedure calls.

Remote Methods

The most recent and up-to-date source of information of available exposed methods is the javadoc for the RPC plugin, specifically those on the XmlRpcService.

The javadoc will often refer to "hashtables with fields from RemoteObject". To the hashtable will contain keys that map to the fields available through reflection of the particular RemoteObject. For example, the object `RemoteVersion`, has the methods getReleaseDate(), getSequence(), isArchived() and isReleased(). This will be converted into a Hashtable with keys releaseDate, sequence, archived and released.

Data Objects

Most returned structs have a summary and a detailed form:

- The summary form is a primary key (ie project key) and a representative form (ie name)
- The detailed form will have all of the entity details as might be needed for the client.

Unless otherwise specified, all returned structs are in detailed form.

Project

Key	Type	Value
id	String	the id of the project
key	String	the project key
name	String	the name of the project
url	String	the url to view this project online

projectUrl	String	the url of this project in your organisation (ie not a JIRA URL)
lead	String	the username of the project lead
description	String	a description of this project

Component

Key	Type	Value
id	String	the id of the component
name	String	the name of the component

Version

Key	Type	Value
id	String	the id of the version
name	String	the name of the version
released	boolean	whether or not this version is released
archived	boolean	whether or not this version is archived

IssueType / Status / Resolution

Key	Type	Value
id	String	the id of this constant
name	String	the name of the constant
description	String	the description of this constant
icon	String	the URL to retrieve the icon of this constant

Priority

Key	Type	Value
id	String	the id of this constant
name	String	the name of the constant
description	String	the description of this constant
icon	String	the URL to retrieve the icon of this constant
colour	String	the colour of this constant

Filter

Key	Type	Value
id	String	the id of this filter
name	String	the name of the filter
description	String	the description of this filter
author	String	the username of this filter's owner
project	String	the id of the project this search relates to (null if the search is across projects)
xml	String	a complete XML representation of this search request - I don't recommend you use this for now, it's complex

User

Key	Type	Value
name	String	the username of this user

fullname	String	the full name of this user
email	String	the email address of this user

Frequently Asked RPC Questions and Known Issues

This page contains frequently asked questions and known issues about RPC, in relation to JIRA.

On this page:

- Common Problems
  - Couldn't build RPC Plugin due to NullPointerException
  - Getting InfrastructureException or ClassCastException upon invocation
- SOAP
  - Converting to type as defined in WSDL
  - Changing the authentication token timeout value
  - Providing schemes to method's arguments
  - Could not update an issue with a RemoteIssue object
  - Setting the value of cascading select customfield
  - Could not invoke methods due to session invalidation
  - Getting fixed targetNamespace
  - Having concurrency problem with multiple issue update
  - Could not invoke user-group methods due to deserialisation or invalid element problems
  - Using the addActorsToProjectRole method
  - Could not upload attachments to an issue due to OutOfMemoryError
  - Getting content-type complaint with .NET client
  - Setting the reporter value upon issue creation
  - Other Known RPC Issues
    - Logging work to an issue
    - Updating user information
    - Deleting version
    - Creating subtask
    - Changing status and resolution of an issue
    - Posting comment while progressing workflow
    - Setting comment "Viewable By" security
    - Getting required and available fields for issue creation
- XML-RPC
  - Could not create and update issue with same Dictionary
  - Setting the value of cascading select customfield
- Need more help?

Common Problems

Couldn't build RPC Plugin due to NullPointerException

If you are getting a `NullPointerException` and a stack trace which looks similar with the one described this document, you may need to disable unit testing in `project.xml` for a smooth build, as mentioned in the document referenced previously.

Getting InfrastructureException or ClassCastException upon invocation

If you are getting a `ClassCastException` or `com.atlassian.jira.InfrastructureException` upon invocation, you may have provided the incorrect data types for the arguments. To resolve this problem, please correct the data types of the arguments accordingly.

If this is not the case and this error is occurring, then it is highly likely that autotyping is the culprit. To resolve this problem, you will need to disable autotyping or alternatively, explicitly declare the data types for the arguments.

SOAP

Converting to type as defined in WSDL

You may occasionally encounter problems mapping the correct data type of your programming language to the one defined in WSDL. If you are running into difficulties related to data mapping, we recommend that you consult the user guide or API documentation of the client library you are using, e.g. WSDL<->Java mapping, Python's SOAPpy, etc, for assistance.

Changing the authentication token timeout value

If you wish to change the timeout value of the authentication token (which is obtained once you've logged in), you will need to update the value for the
`DEFAULT_TIMEOUT` constant in the current `com.atlassian.jira.rpc.auth.TokenManager` implementation, i.e. `com.atlassian.jira.rpc.auth.TokenManagerImpl`.

Providing schemes to method's arguments

Users are often unsure whether they should construct or retrieve the scheme object(s) which will be passed to an argument. For your understanding, internally, the RPC plugin recognises just the `id` of the scheme, hence the `name`, `type`, `description`, etc. are usually insignificant.

Could not update an issue with a RemoteIssue object

Unfortunately, you can only **create an issue** with a RemoteIssue object. You cannot **update an issue** with a RemoteIssue object. The `createIssue()` method expects a `RemoteIssue` object as its argument, however the `updateIssue()` method expects an array of `RemoteFieldValue` objects (as per the WDSL).

Setting the value of cascading select customfield

Setting the value of a cascading select custom field can be complicated, as the create issue and update issue scenarios are different. Please refer to the points below for assistance in setting up your cascading select custom field correctly:

- While creating an issue, the parent field is set by providing the `customfieldId` and `values` (single-element array with option's id) and the child field is set by providing the `customfieldId`, `key` (as `1`) and `values`.
- While updating an issue, the parent field is set by providing value (a single-element array with option's id) to the `customfieldId` and the child field is set by providing value to the `customfieldId:key` (`key` as `1`, e.g. `customfield_10000:1`).

The same logic applies to XML-RPC, please refer to this example.

Could not invoke methods due to session invalidation

A known issue exists where methods may be prevented from being invoked due to session invalidation, i.e. an `IllegalStateException` occurs when trying to invoke the RPC methods:

```
java.lang.IllegalStateException: getAttribute: Session already invalidated
 at org.apache.axis.message.SOAPFaultBuilder.createFault(SOAPFaultBuilder.java:221)
 at org.apache.axis.message.SOAPFaultBuilder.endElement(SOAPFaultBuilder.java:128)
 at
org.apache.axis.encoding.DeserializationContext.endElement(DeserializationContext.java:1087)
 at
com.sun.org.apache.xerces.internal.parsers.AbstractSAXParser.endElement(AbstractSAXParser.java:
at
com.sun.org.apache.xerces.internal.impl.XMLNSDocumentScannerImpl.scanEndElement(XMLNSDocumentSc
at
com.sun.org.apache.xerces.internal.impl.XMLDocumentFragmentScannerImpl$FragmentContentDispatche
at
com.sun.org.apache.xerces.internal.impl.XMLDocumentFragmentScannerImpl.scanDocument(XMLDocument
at
com.sun.org.apache.xerces.internal.parsers.XML11Configuration.parse(XML11Configuration.java:834
at
com.sun.org.apache.xerces.internal.parsers.XML11Configuration.parse(XML11Configuration.java:764
at com.sun.org.apache.xerces.internal.parsers.XMLParser.parse(XMLParser.java:148)
 at
com.sun.org.apache.xerces.internal.parsers.AbstractSAXParser.parse(AbstractSAXParser.java:1242)
at javax.xml.parsers.SAXParser.parse(SAXParser.java:375)
 at org.apache.axis.encoding.DeserializationContext.parse(DeserializationContext.java:227)
 at org.apache.axis.SOAPPart.getAsSOAPEnvelope(SOAPPart.java:696)
 at org.apache.axis.Message.getSOAPEnvelope(Message.java:424)
 at
org.apache.axis.handlers.soap.MustUnderstandChecker.invoke(MustUnderstandChecker.java:62)
 at org.apache.axis.client.AxisClient.invoke(AxisClient.java:206)
 at org.apache.axis.client.Call.invokeEngine(Call.java:2754)
 at org.apache.axis.client.Call.invoke(Call.java:2737)
 at org.apache.axis.client.Call.invoke(Call.java:2413)
 at org.apache.axis.client.Call.invoke(Call.java:2336)
 at org.apache.axis.client.Call.invoke(Call.java:1793)
 at
com.atlassian.jira.rpc.soapclient.JirasoapserviceV2SoapBindingStub.getFieldsForAction(Jirasoaps
```

Please refer to the bug report being tracked at JRA-8009. We would appreciate any comments added to this issue, if you encounter this problem.

Getting fixed targetNamespace

Getting a fixed targetNamespace is a known issue, which is being tracked at JRA-10849. The `targetNamespace` of the WSDL is defined by the first request to it.

Having concurrency problem with multiple issue update

Constantly or simultaneously updating an issue causes data inconsistency of the issue. This is a known issue which is currently being tracked at JRA-11382.

Could not invoke user-group methods due to deserialisation or invalid element problems

If you are using Python (SOAPpy) and encountering deserialisation or invalid element problems while invoking the `addUserToGroup()` method, e.g.

```
<Fault soapenv:Server.userException: org.xml.sax.SAXException: No deserializer defined for
array type {http://soapinterop.org/xsd}SOAPStruct:
<SOAPpy.Types.structType detail at 1085258540>: {'hostname': 'atlassian01.contegix.com',
'faultData': <SOAPpy.Types.structType faultData at
1084456684>: {'exception': None, 'message': 'No deserializer defined for array type
{http://soapinterop.org/xsd}SOAPStruct'}}>
Traceback (most recent call last):
File "./soapclient.py", line 58, in ?
soap.addUserToGroup(auth, group, user)
```

```
SOAPpy.Types.faultType: <Fault soapenv:Server.userException: org.xml.sax.SAXException:
Invalid element in com.atlassian.jira.rpc.soap.beans.
RemoteGroup - email: <SOAPpy.Types.structType detail at 29991600>: {'hostname': 'bruwa116',
'faultData': <SOAPpy.Types.structType faultData
at 29991680>: {'exception': None, 'message': 'Invalid element in
com.atlassian.jira.rpc.soap.beans.RemoteGroup - email'}}>
```

you should be able to resolve this by following the workarounds described in these issues — JRA-7920 and JRA-7971

Using the addActorsToProjectRole method

If you are having problems using the `addActorsToProjectRole` method, you may find the following advice helpful:
The `JiraSoapService.addActorsToProjectRole()` method internally invokes the `ProjectRoleService.addActorsToProjectRole()` method. You must provide either an array of users or groups based on the actorType value, i.e. UserRoleActor.TYPE or GroupRoleActor.TYPE.

For example,

```
jiraSoapService.addActorsToProjectRole(token, new String[]{"admin", "foo", "bar"},
projectRole, project, UserRoleActor.TYPE);
```

Could not upload attachments to an issue due to OutOfMemoryError

If your Java (Axis) SOAP client is throwing an `OutOfMemoryError` while attaching files to an issue, Axis 1.3 may be the cause. This known issue has been commonly reported by users and is being tracked at JRA-11693.

Getting content-type complaint with .NET client

This seems to be the problem with the .NET web service library. We would appreciate your contributions to tracking issue, JRA-11515, if you encounter a similar problem.

Setting the reporter value upon issue creation

If you are not able to set the reporter value (to someone other than the current SOAP client) even though it is provided, you may be using the old RPC plugin (3.6.x and older). This improvement (JRA-8794) is delivered in the latest version (3.7.x onwards).

Other Known RPC Issues

Unfortunately there are a number of known RPC issues, which are currently unsupported. These have already been raised in our issue tracker and are listed below.

If you would like to try manually patching or customising the RPC plugin to address these issues yourself, the source code of the RPC plugin is freely available for you to modify.

Logging work to an issue

Unfortunately, this is not supported at the moment. Feel free contribute to the issue at JRA-7260 with your comments and vote.

Updating user information

Unfortunately, this is not supported at the moment. Feel free contribute to the issue at JRA-11252 with your comments and vote.

Deleting version

Unfortunately, this is not supported at the moment. Feel free contribute to the issue at JRA-11532 with your comments and vote.

Creating subtask

Unfortunately, this is not supported at the moment. Feel free contribute to the issue at JRA-6896 with your comments and vote.

Changing status and resolution of an issue

The only way to set the status and resolution of an issue is by invoking the `progressWorkflowAction()` method. Feel free contribute to the issue at JRA-10472 with your comments and vote.

Posting comment while progressing workflow

Unfortunately, this is not supported at the moment. Feel free contribute to the issue at JRA-11278 with your comments and vote.

Setting comment "Viewable By" security

Unfortunately, this is not supported at the moment. Feel free contribute to the issue at JRA-11278 with your comments and vote.

Getting required and available fields for issue creation

Unfortunately, this is not supported at the moment. Feel free contribute to the issue at JRA-11597 with your comments and vote.

XML-RPC

Please take note that a number of the frequently asked XML-RPC questions are similar to the respective SOAP questions above, as some of the functions of the XML-RPC service are underpinned by the SOAP service. Hence, the questions may not be mentioned again below.

Could not create and update issue with same Dictionary

If you are running into problems creating and updating issues with the same Directory, you may be specifying the arguments incorrectly. Internally, JIRA's XmlRpcService uses SOAP to create and update an issue. Due to this reason, the Dictionary (or Hashtable, or Map) argument in `createIssue()` and `updateIssue()` are different as explained above.

This Perl XMLRPC::Lite example demonstrates how an issue is created and updated:

```
# Create an issue with a RemoteIssue structure

$jira->call("jira1.createIssue", $auth, {
  "project" => "MYC",
  "type" => 1,
  "reporter" => "admin",
  "assignee" => "admin",
  "summary" => "Issue created via Perl XMLRPC :)",
  "customFieldValues" => [
    {"customfieldId" => "customfield_10000",
     "values" => [SOAP::Data->type(string => "10000")]
    },
    {"customfieldId" => "customfield_10000",
     "key" => "1",
     "values" => [SOAP::Data->type(string => "10002")]
    }
  ]
});

# Update an issue with field-values pairs

$jira->call("jira1.updateIssue", $auth, "MYC-3",
  {"customfield_10000" => [SOAP::Data->type(string => "10000")],
   "customfield_10000:1" => [SOAP::Data->type(string => "10002")]
  }
);
```

Setting the value of cascading select customfield

Please refer to the explanation in SOAP section.

Need more help?

If you can't find an answer to your question on this page, you may want to try searching the Atlassian forums and Issue Tracker . These two resources often contain helpful discussion on RPC topics that may solve your problem.

The following documents may also help answer your question:

- Creating a SOAP Client
- Creating a XML-RPC Client

Adding your own email handling classes

In JIRA, emails may be periodically fetched (eg. via POP or IMAP) and processed (eg. create a new issue, create a comment). You can add new ways of processing emails by implementing the MessageHandler interface in JIRA (or subclassing one if its implementations).

> **MessageHandlers**
> For more information on MessageHandlers, including API documentation and source to the system handlers, see the documentation

After writing your MessageHandler implementation, this is how to get it into JIRA:

1. Compile your handler and add it to the JIRA classpath (either as a JAR in WEB-INF/lib or as a class in WEB-INF/classes). JIRA Standalone has an `external-source` directory whose README describes a quick way to compile source (see How to Make a JIRA Patch).
2. Add your handler to the services/com/atlassian/jira/service/services/pop/popservice.xml
3. Restart JIRA

You should now be able to select your own MessageHandler when configuring a POP service.

Modifying JIRA Templates and JSPs

If you wish to change JIRA's behaviour by modifying the JSPs or Velocity templates, you can do so simply by changing files in the JIRA distribution. JIRA will pick up changes to its JSPs the next time that page is displayed: restarting isn't necessary. On the other hand, you will need to restart JIRA in order to see changes to the Velocity templates.

However, keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

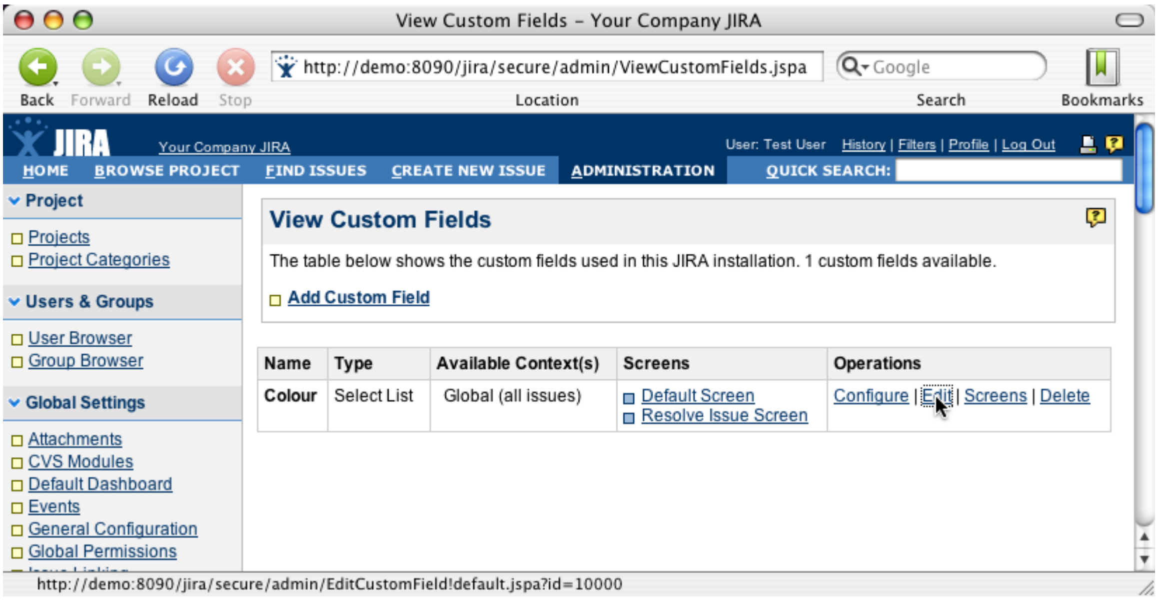
- Adding Custom Fields to Email
- Adding Custom Field to Issue Summary
- Adding JavaScript to all pages for Google Analytics
- Contents of the Velocity Context
- Creating a Custom Release Notes Template Containing Release Comments
- Customising interface based on user's role
- Customising JIRA Excel Output
- Customizing text
- Mapping custom events to new email templates
- Velocity Context for Email Templates

Adding Custom Fields to Email

Printing a custom field in a JIRA email is fairly easy in 3.6 and above. The feature request to integrate this into JIRA is being tracked at JRA-4619.

Step 1: find the custom field Id

This can be discovered from the database, or by examining the URLs of custom field pages. For example, here the id of the custom field is 10000:



Step 2: edit the velocity template

If using the EAR/WAR version, make changes in the edit-webapp directory, then rebuild and re-deploy the WAR file.

Locate the Velocity template of the email type you wish to modify. For instance, you may want to modify the 'issue created' template, as well as the template reused in 'issue commented':

```
atlassian-jira/WEB-INF/classes/templates/email/text/issuecreated.vm
atlassian-jira/WEB-INF/classes/templates/email/text/includes/issuesummary.vm
```

Add the following snippet where you want it to appear in the file:

```
#if ($issue.getCustomFieldValue("customfield_10000"))
$stringUtils.leftPad($issue.getCustomField("customfield_10000").name, $padSize):
$issue.getCustomFieldValue("customfield_10000")
#end
```

*The javadoc for **$stringUtils.leftPad** can be found here.*

In `atlassian-jira/WEB-INF/classes/templates/email/text/includes/issuesummary.vm` you will want:

```
#if ($issue.getCustomFieldValue("customfield_10000"))
>$stringUtils.leftPad($issue.getCustomField("customfield_10000").name, $padSize):
$issue.getCustomFieldValue("customfield_10000")
#end
```

Note: **you need to change the custom field id** to the id observed in step 1. Here it is 10000 - yours will probably be different.

If you wish to iterate over all related custom fields you can use the following example:

```
#foreach ($value in $customFieldManager.getCustomFieldObjects($issue))
>$stringUtils.leftPad($value.getName(), $padSize): $!value.getValueFromIssue($issue)
#end
```

Restart JIRA.

To make the changes take effect, restart JIRA. If you wish to avoid the continual restarts during testing, edit `atlassian-jira/WEB-INF/classes/velocity.properties` and alter this section as the comment says:

```
# To enable autoreloading, set cache to false and uncomment the autoreload line
class.resource.loader.cache=true
#velocimacro.library.autoreload=true
```

Adding Custom Field to Issue Summary

On the View Issue page some of the issue's details are displayed in the top-left corner. With some minor customisation it is possible to display a custom field their as well. To do this please add the following code to the `includes/panels/issue/view_details.jsp` file found under the JIRA web application:

```
<webwork:iterator value="/fieldScreenRenderTabs" status="'status'">
    <%-- Show tab's fields --%>
    <webwork:iterator value="./fieldScreenRenderLayoutItems">
        <webwork:property value="./orderableField">
            <%-- don't display custom fields with no values --%>
            <webwork:if test="./id == 'customfield_<id>' && ./value(/issueObject) != null &&
./customFieldType/descriptor/viewTemplateExists != false">
                <tr id="rowFor<webwork:property value="./id" />">
                    <td valign=top><b><webwork:property value="name" />:</b></td>
                    <td valign=top>
                        <webwork:property value="/customFieldHtml(../fieldLayoutItem,.,
/issueObject)" escape="false" />
                    </td>
                </tr>
            </webwork:if>
        </webwork:property>
    </webwork:iterator>
</webwork:iterator>
```

Note, that the `<id>` in the above code needs to be replaced with the valid numeric id of the custom field you wish to display. For example, 'customfield_10000'.

On newer editions of JIRA (3.7+), *view_details.jsp* is no longer used and has been supplanted by velocity templates. The file you'll want to modify will be: *WEB-INF/classes/templates/jira/issue/summary/issuesummary.vm*. The syntax for the changes will be different from above. You can see a community contributed example on our forums here.

Adding JavaScript to all pages for Google Analytics

Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From `<jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties`:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

If you wish to add javascript to every page within JIRA (for example for use with Goolge Analytics), add the following javascript to `<atlassian-jira>/includes/decorators/header.jsp` (JIRA 4.x) or `stylesheettag.jsp` (JIRA 3.13):

```
<script src="http://www.google-analytics.com/urchin.js" type="text/javascript">
</script>
<script type="text/javascript">
_uacct = "UA-xxxxx";
urchinTracker();
</script>
```

Contents of the Velocity Context

This is the listing of the contents of the Velocity Context used to process web templates.

For JIRA 3.6.x and later - please refer to the JIRA 3.6.x guide for details on the velocity context used to process email templates.

Velocity variable	JIRA Object/Value	Description	As of Version	Conditi
constantsManager	com.atlassian.jira.config.ConstantsManager	Manager for issue types, statuses, priorities and resolutions.	3.4	always p
projectManager	com.atlassian.jira.project.ProjectManager	Implementations of this interface are responsible for all management of project entities within JIRA.	3.4	always p
customFieldManager	com.atlassian.jira.issue.CustomFieldManager	Functions for working with CustomFields	3.5	always p
applicationProperties	com.atlassian.jira.config.properties.ApplicationProperties	provides access to JIRA properties stored in the DB	3.4	always p
jirautils	com.atlassian.jira.util.JiraUtils	Miscellaneous utility methods.	3.4	always p
jirakeyutils	com.atlassian.jira.util.JiraKeyUtils	utilities to determine the validity of JIRA project/issue keys	3.4	always p
buildutils	com.atlassian.jira.util.BuildUtils	provides information on the running version of JIRA	3.4	always p
velocityhelper	com.atlassian.jira.util.JiraVelocityHelper	A simple class store methods we want to expose to velocity templates	3.4	always p
userutils	com.atlassian.core.user.UserUtils	A utility class for operating on users.	3.4	always p
textutils	com.opensymphony.util.TextUtils	lots of utility methods for manipulating text	3.4	always p

params	java.util.Map	parameters of the IssueEvent that triggered this email notification	3.4	always p
issue	org.ofbiz.core.entity.GenericValue	a GenericValue representing the issue which triggered this email notification	3.4	always p
issueObject	com.atlassian.jira.issue.MutableIssue	an Issue object representing the issue which triggered this email notification	3.5.2	always p
remoteUser	com.opensymphony.user.User	the logged in user if they exist	3.4	remoteU
renderedDescription	java.lang.String	the rendered description field, it a renderer has been specified	3.4	renderer issue and
renderedEnvironment	java.lang.String	the rendered environment field, it a renderer has been specified	3.4	renderer issue and
timeoriginalestimate	java.lang.String	The DateUtils.getDurationPretty value of timeoriginalestimate from issue or "None" if null	3.4	always p
timeestimate	java.lang.String	The DateUtils.getDurationPretty value of timeestimate from issue or "None" if null	3.4	always p
timespent	java.lang.String	The DateUtils.getDurationPretty value of timespent from issue or "None" if null	3.4	always p
duedate	java.sql.Timestamp	Duedate from the issue	3.4	always p
versions	List(org.ofbiz.core.entity.GenericValue)	A list of GenericValues representing the Affected Versions of the issue	3.4	always p
fixfors	List(org.ofbiz.core.entity.GenericValue)	A list of GenericValues representing the Fix Versions of the issue	3.4	always p
components	List(org.ofbiz.core.entity.GenericValue)	A list of GenericValues representing the Components of the issue	3.4	always p
assignee	com.opensymphony.user.User	The assignee of the issue	3.4	assignee
reporter	com.opensymphony.user.User	The reporter of the issue	3.4	reporter
renderedComment	java.lang.String	the rendered comment field, it a renderer has been specified. The comment is the comment associated with the change	3.4	renderer issue and comment
comment	org.ofbiz.core.entity.GenericValue	generic value representing the comment associated with the change	3.4	commer
commentauthor	com.opensymphony.user.User	the author of the comment	3.4	commer
timelogged	java.lang.String	The DateUtils.getDurationPretty value of timelogged from issue or "None" if null	3.4	always p
changelog	org.ofbiz.core.entity.GenericValue	generic value representing the changelog associated with the change	3.4	changelo
changelogauthor	com.opensymphony.user.User	The change log author of the issue	3.4	changelo
visibilitylevel	java.lang.String	The security level of the comment	3.4	commer
i18n	com.atlassian.jira.util.I18nHelper	Bean that searches for i18n text in JiraWebActionSupport.properties	3.4	always p
dateutils	`com.atlassian.core.util.DateUtils`	methods for working with dates	3.4	always p

attachments	List(org.ofbiz.core.entity.GenericValue)	list of generic values that represents the attachments associated with the issue	3.4	always p
security	org.ofbiz.core.entity.GenericValue	generic value representing the security level, if any, associated with this issue	3.4	if(isEnte
mailPluginsHelper	com.atlassian.jira.mail.JiraMailPluginsHelperImpl	provides access to isPluginModuleEnabled()	3.7	always p

Creating a Custom Release Notes Template Containing Release Comments

Many JIRA users want to expand the generated Release Notes to include release comments for each issue in the report. This tutorial shows how to do this using a custom field and some customized velocity templates. It assumes the reader understands JIRA's custom fields. For more information on custom fields see the JIRA documentation.

- Step 1: Creating a Custom Field
- Step 2: Creating Custom Velocity Templates for Release Notes Reports
- Step 3: Modifying JIRA to Use Custom Velocity Templates
    - Deploying Velocity Templates without a Restart
- Step 4: Filtering Release Notes
- Conclusion
- Further Resources

Step 1: Creating a Custom Field

The first thing to do is add a custom field for your release note comments. To add the custom field, click the *Administration* link in the top navigation bar then choose *Issue Fields* > *Custom Fields* and on the resulting page choose the *Add Custom Field* link. You should see this screen:

From this screen choose the *Free Text Field (unlimited text)* field type and click *next*. On the next page enter the name, description, search template, applicable issue types, and applicable context of our new custom field. The values should be:

- name: release notes comments
- description: This is a comment to include on the generated release notes.
- search template: Free Text Searcher (the default for this type of custom field)
- applicable issue typs: Any Issue Type (this can quite easily be changed if you only wish this custom field to apply to a certain issue type)
- applicable context: Global context. Apply to all issues in JIRA (you can choose here to suit your preference)

The input screen should look like this:

Click the Finish button. You will be taken to the 'Associate field release notes comments to screens' screen. Click the checkbox associated with the 'Resolve Issue Screen'. In this example it only really makes sense to show this custom field when resolving or closing an issue. The screen should look like this:

Click the Update button. You are now finished creating our custom field. When you choose to resolve or close an issue you should now have a text area where you can enter comments to appear on the release notes.

Step 2: Creating Custom Velocity Templates for Release Notes Reports

Velocity is the templating engine used in JIRA. Currently JIRA ships with a text and a html release notes report template. For this tutorial we will modify the existing templates to also display the custom field that we created in the previous step, for each issue in the report. The modified text template looks something like this:

```
#macro (getReleaseNoteComment $issue $customFieldManager)
#set ($customFields = $customFieldManager.getCustomFieldObjects($issue.project.getLong("id"),
$issue.issueType.getString("id")))
#foreach($customField in $customFields)
#if($customField.name.equals("release notes comments"))
#if($customField.getValue($issue)) - Release Comment:
$textUtils.htmlEncode($customField.getValue($issue))#end
#end
#end
#end

<title>$action.getText('release.notes.text.title', $project, $version) </title>
<body>
<table>
<tr>
<td>

#foreach ($issueType in $issueTypes)
#if($issueType.issues.size() > 0)
<h2>$textUtils.htmlEncode($issueType.name)</h2>
<ul>
#foreach ($issue in $issueType.issues)
<li>[<a xhref='$!appProps.getString("jira.baseurl")/browse/$issue.key'>$issue.key</a>] -
 $textUtils.htmlEncode($issue.summary)#getReleaseNoteComment($issue $customFieldManager)</li>
#end
</ul>
#end
#end
</td>
</tr>

<tr>
<td>

<hr width="100%">

<a name="editarea"><h2>$action.getText('release.notes.edit.copy')</h2></a>
<p>$action.getText('release.notes.description')<br></p>

<textarea rows="40" cols="120">

$action.getText('release.notes.heading', $project, $version)

#foreach ($issueType in $issueTypes)
#if($issueType.issues.size() > 0)
** $textUtils.htmlEncode($issueType.name)
#foreach ($issue in $issueType.issues)
* [$issue.key] - $textUtils.htmlEncode($issue.summary)#getReleaseNoteComment($issue
$customFieldManager)
#end
#end

#end
</textarea>
</td>
</tr>
</table>
</body>
```

The modified html template looks like this:

```
#macro (getReleaseNoteComment $issue $customFieldManager)
#set ($customFields = $customFieldManager.getCustomFieldObjects($issue.project.getLong("id"),
$issue.issueType.getString("id")))
#foreach($customField in $customFields)
#if($customField.name.equals("release notes comments"))
#if($customField.getValue($issue)) - <b>Release Comment</b>:
$textUtils.htmlEncode($customField.getValue($issue))#end
#end
#end
#end
<title>$action.getText('release.notes.html.title', $project, $version) </title>
<body>
<table>
<tr>
<td>

#foreach ($issueType in $issueTypes)
#if($issueType.issues.size() > 0)
<h2>$textUtils.htmlEncode($issueType.name)</h2>
<ul>
#foreach ($issue in $issueType.issues)
<li>[<a xhref='$!appProps.getString("jira.baseurl")/browse/$issue.key'>$issue.key</a>] -
 $textUtils.htmlEncode($issue.summary)#getReleaseNoteComment($issue $customFieldManager)</li>
#end
</ul>
#end
#end
</td>
</tr>

<tr>
<td>

<hr width="100%">

<a name="editarea"><h2>$action.getText('release.notes.edit.copy')</h2></a>
<p>$action.getText('release.notes.description')<br></p>

<textarea rows="40" cols="120">

$action.getText('release.notes.heading', $project, $version)
#foreach ($issueType in $issueTypes)
#if($issueType.issues.size() > 0)

<h2>$textUtils.htmlEncode($issueType.name)</h2>
<ul>
#foreach ($issue in $issueType.issues)
<li>[<a xhref='$!appProps.getString("jira.baseurl")/browse/$issue.key'>$issue.key</a>] -
 $textUtils.htmlEncode($issue.summary)#getReleaseNoteComment($issue $customFieldManager)</li>
#end
</ul>
#end
#end
</textarea>
</td>
</tr>
</table>
</body>
```

The only difference between the above templates and the originals is the definition of the velocity macro 'getReleaseNoteComment' and its use after the issue summary. In the macro we use the context variable $customFieldManager which is an instance of the com.atlassian.jira.issue.CustomFieldManager interface. We use the CustomFieldManager to get all CustomFieldObjects for the current issue and then iterate through them looking for the field we want. When we find the field named 'release notes comments' we get and display the value if it is not null. *NOTE: we do not use the getCustomFieldObjectByName method because it is deprecated and we can not be certain that the custom field name will be unique within the JIRA instance.*

These velocity templates will display the 'release notes comments' custom field in our generated Release Notes. Now you need to tell JIRA to use the new templates.

Step 3: Modifying JIRA to Use Custom Velocity Templates

> ⚠ Customisations to Velocity templates or other JIRA files are not included in the scope of Atlassian Support.

Deploying Velocity Templates without a Restart

In a development instance, you can play with picking up velocity file changes without a restart.
From <jira-install>/atlassian-jira/WEB-INF/classes/velocity.properties:

1. Change class.resource.loader.cache from true to false
2. Uncomment (remove the # sign from) #velocimacro.library.autoreload=true

> ℹ Keep in mind that the next time you upgrade JIRA – or need a new installation for any reason – you will have to manually copy any changes you have made to the JSPs or tempates into the new installation of JIRA. If the JSPs or templates have changed in the newer version, you will have to port your customization into them.

This is quite a simple step. Place the two velocity templates into your JIRA distribution* in the directory: WEB-INF/classes/templates/jira/project/releasenotes . Next you must modify the WEB-INF/classes/jira-application.properties file. There are two variables that are of importance to us:

{{jira.releasenotes.templatenames = Text, Html
jira.releasenotes.templates = releasenotes-text.vm, releasenotes-html.vm}}

We do not need to modify the first property since we still want a Text and Html option and have only changed the templates. We modify the second property to look like this:

```
jira.releasenotes.templates = releasenotes-with-releasecomment-text.vm,
releasenotes-with-releasecomment-html.vm
```

Save the properties file and restart Jira. Now we can test that what we have done works. You must make sure you can generate some Release Notes that will contain issues:

- Make sure that you have created a version for the project you are testing this under (release notes can only be generated for a version).
- Make sure that you have some issues that have the fix versions set to the version you created above.
- Make sure that you have entered some release comment text on the issues with the fix versions from above(in our example if there is not a release comment for an issue then nothing will display and it will look very much like the original Release Notes).

Browse to the release notes page, click the 'Browse Project' link in the top navigation, click the 'Release Notes' link on the resulting page, choose your 'Version' and 'Style', and click 'Create'. You should see the release note comments text after the summary text for each issue. The screen should look something like this:

Step 4: Filtering Release Notes

As an optional extra, you can filter the release notes based on various issue properties to see if they match your criteria. For example, to print only issues that have a resolution of Fixed and a Status, put an #if statement around the code that creates a bullet point for the issue:

```
#set ($resolution = $issue.getResolutionObject())
#set ($status = $issue.getStatusObject())
## check for resolved or closed and fixed
#if (($status.getId() == "5" || $status.getId() == "6") && $resolution.getId() == "1")
 <li>[<a
href='$!appProps.getString("jira.baseurl")/browse/$issue.getString("key")'>$issue.getString("key")</a
-
 $textUtils.htmlEncode($issue.getString("summary"))#getReleaseNoteComment($issue
$customFieldManager)</li>
#end
```

* The Jira Distribution is the package that you downloaded and installed from our website. The directory commonly has a name starting with **atlassian-jira-<edition>-<version>**.

Conclusion

This tutorial shows a very simple modification to the Release Notes reports but the concepts used within should show you how to customize Release Notes to fit many other needs. The use of custom fields and the mechanism for accessing their values through a velocity template can allow a great number of extensions beyond the scope of this example.

Have fun and good luck!

Further Resources

1) Available Fields - Please see the JIRA Remote API for details on what information you can retrieve. For example:

- Projects
- Issues

2) Template Syntax - The Velocity User Guide will help you choose the right syntax.

3) Help & Support - Please post to the JIRA Development Forums for get help from the user community with your templates.

Customising interface based on user's role

Sometimes it is useful to remove certain elements from JIRA's user interface if the user does not belong to a certain group. Most of the time this can be achieved by editing certain JSP / Velocity files. The JSP files are easy to edit as they are text files, and one does not need access to JIRA's source code.

In velocity, you can hide certain elements from the UI by surrounding the relevant code with:

```
#if ($authcontext.user.inGroup('jira-administrators'))
...
#end
```

So to hide the security level you need to edit the file `WEB-INF\classes\templates\jira\issue\field\comment-edit.vm` and end up with something like this.

```
#if ($authcontext.user.inGroup('jira-administrators'))
    #if ($commentLevels && !$commentLevels.isEmpty())
        #controlHeader ($action 'commentLevel' $i18n.getText('comment.viewable') false
$displayParameters.get('noHeader'))
        ...
        #controlFooter ($action '' $displayParameters.get('noHeader'))
    #end
#end
```

You need to update **both** places in the file and then restart JIRA.

> If you make changes such as this, you will need to **remember** to port them to a new version of JIRA when you upgrade

Customising JIRA Excel Output

Overview

Microsoft Office 2000 supports Hypertext Markup Language (HTML) as a native file format, allowing Microsoft Excel to save and open HTML files as spreadsheets with all the document formatting preserved. The document can be formatted through a combination of HTML, XML and Cascading Style Sheets (CSS).

The format of the Excel output from JIRA can be modified by editing the template file *searchrequest-excel-header.vm* (located within *src/etc/java/templates/plugins/searchrequestviews/* of your JIRA home folder). Editing this file is essentially editing a HTML template file with tables and styles.

By default the template file *searchrequest-excel-header.vm* should contain:

searchrequest-excel-header.vm

```
...
<style>
@page
{
mso-page-orientation:landscape;
margin:.25in .25in .5in .25in;
mso-header-margin:.5in;
mso-footer-margin:.25in;
mso-footer-data:"&R&P of &N";
mso-horizontal-page-align:center;
mso-vertical-page-align:center;
}

br
{
    mso-data-placement:same-cell;
}

td
{
    vertical-align: top;
}
</style>
...
```

The above formats the default excel output to have the page orientation as landscape, and multi-lined text will be kept within one cell. Further examples are provided below.

Microsoft Office HTML and XML Reference

Microsoft Office HTML and XML reference contains a thorough listing of available styles and details on how to use them. The reference manual is available for download from http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnoffxml/html/ofxml2k.asp

Examples

Example 1 - Customising Page Setup

Excel uses CSS and @page definitions to store some page setup settings and XML to store others. Below is a sample to setup the page with the following document format respectively.

- Set page orientation as landscape (default is portrait)
- Set the top, right, bottom and left margins as .75in .25in .75in .25in respectively
- Set header margin as .5in
- Set footer margin as .4in
- Set a custom footer displaying page number, date and time all centered.

Details of the default values, and special symbols to use for styles can be found in the Microsoft Reference Manual.

```
<style>
...
@page
{
mso-page-orientation: landscape;
margin:.75in .25in .75in .25in;
mso-header-margin:.5in;
mso-footer-margin:.4in;
mso-footer-data:"&C Page &P of &N Date: &D Time: &T";
<!-- other @page styles ... -->
}
</style>
```

Example 2 - Customising Cell Formatting

Both CSS and HTML are used to customise the cells. A global style that is applied to all table cells can be applied using TD definition.

```
<style>
...
TD
{
mso-numberformat:general;
text-align: left;
vertical-align: middle;
color:red
<!-- other TD styles ... -->
}
</style>
```

The above applies the following styles to all table cells respectively:

- Sets the number format of all table cells as *general*
- Horizontally aligns the text in the cell to the left
- Vertically aligns the text in the cell to the middle
- Set the text color to be red

Individual or group of cells may have other styles applied by adding a class value into the appropriate HTML tags

Customizing text

JIRA (and most Java applications in general) determine what internationalization package to use by **inheriting the System Locale**, which is provided by the underlying operating system to the JAVA JVM. The `language_default.jar` is only chosen when the inherited locale does not map to any of the included languages.

This means that if you modify `language_default.jar` *instead* of your specific language pack (e.g. `language_en_UK.jar`) then you will need to remove `language_en_UK.jar` for JIRA to then default back to the modified `language_default.jar`.

Most user-accessible pages in JIRA have been 'internationalized', meaning the pages will display in the user's preferred language. All text snippets on JIRA pages are stored centrally in 'properties' files, separate from the pages they occur in. There is one set of properties files for each language, and one default (English) set.

This centralized storage of text snippets makes it easy to change some text in JIRA to anything you like. This page describes how it can be done.

Say we wish to reduce the verbosity of the 'view issue' page's text, from:

- Assign this issue
- Attach file to this issue
- Attach screenshot to this issue
- Comment on this issue
- Delete this issue
- Edit this issue
- Link this issue to another issue
- Move this issue to another project

to:

- Assign
- Attach file
- Attach screenshot
- Add Comment
- Delete
- Edit
- Link to another issue
- Move to another project

Properties files are stored in a packaged (jar) format in `atlassian-jira/WEB-INF/lib`:

```
[atlassian-jira-professional-2.6.1-standalone-tomcat ~/atlassian-jira/WEB-INF/lib]$ ls \-1
language\*
language_da_DK.jar
language_de_DE.jar
language_default.jar
language_en_UK.jar
language_pt_BR.jar
language_ru_RU.jar
```

We wish to extract the contents of one of these for editing. To do this, go to the `atlassian-jira/WEB-INF/classes` directory, and unzip the relevant file:

jar files are actually zip files, so you can use a tool like WinZip to extract their contents. Here we use the 'jar' command that comes with Java

```
[atlassian-jira-enterprise-4.0.1-standalone/atlassian-jira/WEB-INF/lib]$ jar xvf
language_default.jar
  created: META-INF/
 inflated: META-INF/MANIFEST.MF
  created: com/
  created: com/atlassian/
  created: com/atlassian/jira/
  created: com/atlassian/jira/web/
  created: com/atlassian/jira/web/action/
 inflated: com/atlassian/jira/web/action/JiraWebActionSupport.properties
```

* If you are using the **WAR/Webapp distribution** of JIRA, you should extract the jar from `webapp/WEB-INF/lib` to `edit-webapp/WEB-INF/classes` and **remove** the `webapp/WEB-INF/lib/language_default.jar` and (if using English) `webapp/WEB-INF/lib/language_en_UK.jar` (using the correct jar for your language).

- If you are using the **standalone distribution** of JIRA and you are running JIRA in an **English locale**, you should extract the jar from `webapp/WEB-INF/lib` to `edit-webapp/WEB-INF/classes` and **remove** the `webapp/WEB-INF/lib/language_default.jar` and `webapp/WEB-INF/lib/language_en_UK.jar`
- If you are using the **standalone distribution** of JIRA and you are running JIRA in an **non-English locale**, you should extract the jar from `webapp/WEB-INF/lib` to `edit-webapp/WEB-INF/classes` and **remove** the `webapp/WEB-INF/lib/language_default.jar` only. Do not remove `webapp/WEB-INF/lib/language_en_UK.jar`, otherwise your users will not be able to select English as a language (See JRA-8266 for further details). You will need to update the text you wish to replace in the properties files (described in the next step) for both the `language_default.jar` and the `language_en_UK.jar`, for your changes to be reflected in JIRA.

Now search for the text you wish to replace. You will find most strings defined in `com/atlassian/jira/web/action/JiraWebActionSupport.properties`. The ones we are interested in are:

```
# issue operations
issue.operations.assign = {0}Assign{1} this issue
issue.operations.assign.tome = to me
issue.operations.attach = {0}Attach file{1} to this issue
issue.operations.attachscreenshot = {0}Attach screenshot{1} to this issue
issue.operations.comment = {0}Comment{1} on this issue
issue.operations.delete = {0}Delete{1} this issue
issue.operations.edit = {0}Edit{1} this issue
issue.operations.link = {0}Link{1} this issue to another issue
issue.operations.move = {0}Move{1} this issue to another project
```

In the text, {0} and {1} indicate sections that will be replaced by JIRA (here, the beginning and end of links), and should not be removed. Edit the text to look like:

```
# issue operations
issue.operations.assign = {0}Assign{1}
issue.operations.assign.tome = to me
issue.operations.attach = {0}Attach file{1}
issue.operations.attachscreenshot = {0}Attach screenshot{1}
issue.operations.comment = {0}Comment{1}
issue.operations.delete = {0}Delete{1}
issue.operations.edit = {0}Edit{1}
issue.operations.link = {0}Link{1} to another issue
issue.operations.move = {0}Move{1} this issue to another project
```

Standalone - Restart JIRA.

Webapp edition - Rebuild JIRA as per your App Server using the build scripts and restart the application server.
If you are deploying a .war to Tomcat - please note that Tomcat unpacks .war files into the `webapps/` directory. **Delete this directory** (eg. `webapps/ROOT` between redeploys, or this old webapp will be deployed.

The changes should be visible when next you view the page.

Mapping custom events to new email templates

CustomWare, one of our development partners, has a page describing how to map custom events to new email templates.

Velocity Context for Email Templates

JIRA 3.6 introduced the TemplateContext and TemplateIssue objects into the Velocity context available for each email template.

The TemplateContext provides access to some general object references for use in the templates - e.g. Utilities, Change Log details, etc.

The TemplateIssue provides access to the Issue object - further extended by helper methods for displaying information in rendered HTML format (i.e. environment, description and comments) and users who may not exist in the system. All issue related details can be retrieved from the TemplateIssue.

The following tables lists other objects that are also available within the context:

Velocity Variable	JIRA Object/Value	Description
userutils	com.atlassian.core.user.UserUtils	collection of utility methods for querying, creating, ar users
velocityhelper	com.atlassian.jira.util.JiraVelocityHelper	a collection of miscellaneous methods (e.g. urlencoc indentTextBlock, printChangelog
textutils	com.opensymphony.util.TextUtils	collection of utility functions for manipulating text
constantsManager	com.atlassian.jira.config.ConstantsManager	JIRA's constants for priorities, resolutions, issue type
projectManager	com.atlassian.jira.project.ProjectManager	management of project entities (e.g. getProjectByNa getComponents, getCategories)
customFieldManager	com.atlassian.jira.issue.CustomFieldManager	functions for working with custom fields
applicationProperties	com.atlassian.jira.config.properties.ApplicationProperties	access JIRA's application properties
jirautils	com.atlassian.jira.util.JiraUtils	a handful of miscellaneous utility methods (e.g. isPu isSetup)
jirakeyutils	com.atlassian.jira.util.JiraKeyUtils	methods for working with project keys
buildutils	com.atlassian.jira.util.BuildUtils	JIRA build and edition information
jiraUserUtils	com.atlassian.jira.user.util.UserUtil	user level operations (e.g. getActiveUserCount, getDisplayableNameSafely, addUserToGroup)
mailPluginsHelper	com.atlassian.jira.mail.JiraMailPluginsHelperImpl	method for checking whether plugins are enabled
userformat	com.atlassian.jira.plugin.profile.UserFormatManager	formatting user names
context	com.atlassian.jira.mail.TemplateContext	The Template Context object itself
issue	com.atlassian.jira.mail.TemplateIssue	An Issue object with extended helper methods for di the issue for which the email notification event was t
params	java.util.Map	Parameters of the IssueEvent that triggered this ema
remoteUser	com.opensymphony.user.User	The user who has triggered this event
stringUtils	org.apache.commons.lang.StringUtils	Utility object providing formatting methods
padSize	java.lang.Integer	Used in text emails for padding the display
timeSpentFieldId	java.lang.String	The Id of the TimeSpentField - used in changelog fo notifications
attachments	Collection(org.ofbiz.core.entity.GenericValue)	Collection of Generic Values that represents the atta associated with the issue
htmlComment	java.lang.String	The comment associated with this event as a render formatted string. A basic string is returned if the com be rendered correctly - including links for any referer issues.

comment	com.atlassian.jira.issue.comments.Comment	The comment associated with this event. The body o comment will be the raw unprocessed comment as e user (e.g. the raw wiki markup)
commentauthor	com.opensymphony.user.User	The author of the comment
roleVisibilityLevel	java.lang.String	The comment's project role level (overwritten by wor
groupVisibilityLevel	java.lang.String	The comment's group level (overwritten by worklog)
originalhtmlComment	java.lang.String	
originalcommentauthor	com.opensymphony.user.User	
originalroleVisibilityLevel		comment (overwritten by worklog)
originalgroupVisibilityLevel		comment (overwritten by worklog)
worklog	com.atlassian.jira.issue.worklog.Worklog	
timeSpentUpdated	java.lang.Boolean	
startDateUpdated	java.lang.Boolean	
commentUpdated	java.lang.Boolean	
visibilityUpdated	java.lang.Boolean	
originalworklog	com.atlassian.jira.issue.worklog.Worklog	
changelog	org.ofbiz.core.entity.GenericValue	The Generic value representing the changelog asso the change
changelogauthor	com.opensymphony.user.User	The change log author
security	org.ofbiz.core.entity.GenericValue	The Generic value representing the security level, if associated with this issue
rendererManager	com.atlassian.jira.issue.RendererManager	JIRA 3.13.3 onwards! allows use of renderers such a renderer. (e.g. $rendererManager.getRenderedContent("atlassian-w "**bold wiki**", $issue.getIssueRenderContext()))
recipient	com.opensymphony.user.User	The recipient of the email
i18n	com.atlassian.jira.utill.I18nHelper	i18n translation helper for the current recipient
dateformatter	com.atlassian.jira.web.util.OutlookDate	Date and time formatter for the current recipient's loc
eventTypeName	java.lang.String	*Available from JIRA 4.1.* The localised event type na example, for the Issue Assigned event, the key `mail.event.type.issueassigned.name` will be translation is not available, the event type name will

JIRA Custom Installer Guide

This page lists instructions for how to build a custom installer for JIRA Standalone.

> **JIRA Version**
> The installer was added in JIRA v3.8. It currently only supports Microsoft Windows.

Requirements

The JIRA installer is built using install4j (v4.0.5). In order to make your own custom installer, you will need to buy a license for install4j. If you would like to sign your installer executables you will also need a valid code signing certificate. If you are building the installer on Linux, you may also require mono and mono-mcs for code-signing purposes.

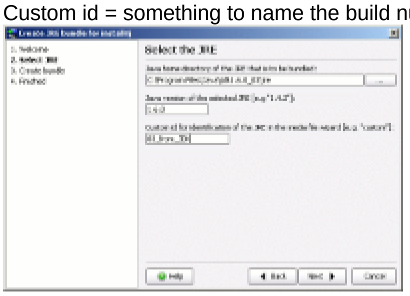
General

The installer is configured using install4j. To edit the installer, open jira-template.install4j in the install4j GUI.

Installed JRE

Install4j will bundle the installer with one of the JREs defined in the <INSTALL4J_HOME>/jres directory.
Prior to version 3.12, the JIRA installer was bundled with a standard jre bundle downloaded from the install4j server called 'windows-x86-1.6.0.tar.gz'.

As of v3.12, we are creating a custom JRE bundle, in order to allow the use of the server JVM (only client JVM is included in the default windows jre bundle).
In order to do this, we create a custom JRE bundle from the JDK. JIRA v3.12 uses JDK 1.6.0_03:

1. Download and install the latest Windows JDK
2. Start install4j application.
3. Select Project > Create a JRE Bundle
4. On the "Select JRE" page, fill in the following values:
   Java home directory = where you just installed the JDK eg. "C:\Program Files\Java\jdk1.6.0_03\jre"
   Java version = the 3 digit version number of the JDK eg. "1.6.0"
   Custom id = something to name the build number and distinguish it form the standard bundle eg. "03_from_jdk"
   

Once you have created the custom JRE bundle, make sure that jira-template.install4j refers to the same JRE bundle name.
See the follow property in jira-template.install4j:

```
includedJRE="windows-x86-1.6.0_03_from_jdk"
```

or browse to Media > Windows > Bundled JRE in the install4j GUI.

Building the Installer

All source files regarding the installer reside in the main JIRA source tree in /jira/subprojects/installer. Edit project.properties to correctly identify your install4j home directory, as well as your certificate keystore:

subprojects/installer/project.properties

```
# The location used for code-signing the executable.  This location should contain an SPC
(software platfrom certificates)
# and PVK (Private key) file for windows.  Not, you will need mono to run this on unix/linux.
atlassian.keystore.location=/path/to/your/keystore
install4j.home=/path/to/your/install4j
```

Please note that the directory defined by the 'atlassian.keystore.location' property **must** contain 2 key files: atlassian.spc and private.pvk. Please see the Code signing section below for how to create these.

Once install4j has been installed, and project.properties has been correctly configured, the following maven command can be executed from the JIRA root directory to build the installer (Note: this will also build JIRA Standalone):

```
maven jira:installer -Dedition=enterprise
```

Code signing

Code signing is useful if you would like to ensure that the executable generated cannot be altered by anyone else. A code signed executable will also list the publisher (i.e. Atlassian Software Systems) correctly when opening the installer exe.

Background

To get a code-signing certificate, you firstly generate a public/private key pair using Java's keytool. The public key/certificate is then submitted to a key signing authority (Thawte in our case) who will verify that you really are who you claim to be, sign your public certificate and send it back. Your keystore stores your private key, public certificate as well as the whole certificate chain from your key signing authority.

Implementation

In Windows, you sign executables with a utility called signcode. There's a mono version for this and it's also included in install4j (with a slight modification that will allow you to specify a password for your private key).

Signcode takes a number of arguments:

1. An SPC file (Software Platform Certificates) which is basically a Windows format of your public certificate.
2. Your private key, in PVK format (also a Windows format).

3. Password for the private key.
4. A location of a timestamp server, such as http://timestamp.verisign.com/scripts/timstamp.dll.
5. The executable you want to sign.

To get all this information you will need some information from your keystore that Java's keytool can't return. The following Java class should return all required information:

```
import sun.misc.BASE64Encoder;

import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.security.*;
import java.security.cert.Certificate;

class ExportPriv
{
    public static void main(String args[]) throws Exception
    {
        ExportPriv myep = new ExportPriv();
        myep.doit();
    }

    public void doit() throws Exception
    {

        KeyStore ks = KeyStore.getInstance("JKS");
        String fileName = "/path/to/your/keystore";

        char[] passPhrase = "password".toCharArray();
        BASE64Encoder myB64 = new BASE64Encoder();


        File certificateFile = new File(fileName);
        ks.load(new FileInputStream(certificateFile), passPhrase);

        KeyPair kp = getPrivateKey(ks, "password", passPhrase);

        Certificate[] certificateChain = ks.getCertificateChain("atlassian");
        for (int i = 0 ; i < certificateChain.length; i++)
        {
            File output = new File("/path/to/your/output/directory/cert"+i+".crt");
            FileOutputStream out = new FileOutputStream(output);
            out.write(certificateChain[i].getEncoded());
            out.flush();
            out.close();

        }
        PrivateKey privKey = kp.getPrivate();


        String b64 = myB64.encode(privKey.getEncoded());

        File output = new File("/path/to/your/output/directory/private.key");
        FileOutputStream out = new FileOutputStream(output);
        out.write(privKey.getEncoded());

        out.flush();
        out.close();


        System.out.println("-----BEGIN PRIVATE KEY-----");
        System.out.println(b64);
        System.out.println("-----END PRIVATE KEY-----");

    }

    public KeyPair getPrivateKey(KeyStore keystore, String alias, char[] password)
    {
        try
        {
            // Get private key
            Key key = keystore.getKey(alias, password);
```

```
            if (key instanceof PrivateKey)
            {
                // Get certificate of public key
                Certificate cert = keystore.getCertificate(alias);

                // Get public key
                PublicKey publicKey = cert.getPublicKey();

                // Return a key pair
                return new KeyPair(publicKey, (PrivateKey) key);
            }
        } catch (UnrecoverableKeyException e)
        {
        } catch (NoSuchAlgorithmException e)
        {
        } catch (KeyStoreException e)
        {
        }
        return null;
```

```
    }
}
```

(Note: This code was copied from here with some modifications)

The get the SPC file you will first have to export your **entire** certificate chain from the keystore first using the Java class above (keytool does not provide a method to do this).
You can then convert this to a SPC file using:

```
cert2spc cert0.crt cert1.crt cert2.crt atlassian.spc
```

The private key returned from the keystore is in the wrong format for the signcode utiltiy. There exists a tool for Windows to convert the private key to the correct Windows PVK format.

Signcode can now be executed:

```
mono /path/to/your/install4j/resource/signcode.exe -spc atlassian.spc  -v private.pvk -vp password
-t http://timestamp.verisign.com/scripts/timstamp.dll JIRA_Enterprise_3_8-DEV_windows.exe
```

JIRA Plugin Tutorials

- Available Permissions
- How to create a new Custom Field Type
- How to create Custom Workflow Elements for JIRA 3

Also see the following tutorials (located in the Developer Network):

Unable to render {include} Couldn't find a page to include called: DEVNET:_JIRA Plugin Tutorials in DEVNET

Available Permissions

For certain JIRA plugins (e.g. Portlets), you can specify permissions required to use the plugin (e.g. for portlets, these are the permissions required to add the portlet to your dashboard). The table below lists the available permissions and the defined constants for these permissions.

Key word	Corresponding JIRA Permission
admin	ADMINISTER
use	USE
project	PROJECT_ADMIN
browse	BROWSE
create	CREATE_ISSUE
attach	CREATE_ATTACHMENT
edit	EDIT_ISSUE
update	EDIT_ISSUE
scheduleissue	SCHEDULE_ISSUE
assignable	ASSIGNABLE_USER
assign	ASSIGN_ISSUE
resolve	RESOLVE_ISSUE
comment	COMMENT_ISSUE
close	CLOSE_ISSUE
work	WORK_ISSUE
link	LINK_ISSUE
delete	DELETE_ISSUE
sharefilters	CREATE_SHARED_FILTER

groupsubscriptions	MANAGE_GROUP_FILTER_SUBSCRIPTIONS
move	MOVE_ISSUE
setsecurity	SET_ISSUE_SECURITY
pickusers	USER_PICKER
viewversioncontrol	VIEW_VERSION_CONTROL
modifyreporter	MODIFY_REPORTER
viewvotersandwatchers	VIEW_VOTERS_AND_WATCHERS
managewatcherlist	MANAGE_WATCHER_LIST

How to create a new Custom Field Type

Since JIRA 3.0 you have been able to create your own Custom Field Types through the plugin interface. In this tutorial, we'll take a look at a few simple examples and explain how you can easily achieve this.

Before you start, you may also want to familiarise yourself with the JIRA Plugin Guide and Adding a Custom Field.

A note about changed interfaces
We're always endeavouring to make JIRA better with each release. This often leads to new improvements and changes to the public interfaces in major JIRA versions. Please see Updating JIRA Plugins for JIRA 4.0 for the latest information.

- A Quick Custom Field Types Primer
- Examples
  - Admin-only editable field
  - Last commented user calculated field
    - Coding the Custom Field Type
    - Wiring it together
    - Enable Searching
    - Sorting in Issue Navigator
  - Amazon search plugin
    - Coding and Attaching the view helper
  - Confluence Page Link custom field

A Quick Custom Field Types Primer

There's a few things you need to understand before diving into custom fields. A custom field type can have three components.

- Java Class encapsulating custom field logic
- Resource templates for display of custom field
- Module descriptor to enable the custom field module in JIRA

A custom field class extends the interface CustomFieldType. This interface provides methods to retrieve and store custom fields values. There are several *extension points* that are available to make creating new custom field types easier (e.g. CalculatedCFType, AbstractSingleFieldType, AbstractMultiSettableCFType). It is also possible to extend existing custom field types to add functionality (e.g. A currency type extending NumberCFType).

The second component are the resource templates which render the custom field. There are four view types available, each representing a different context to render the custom field.

1. **`view`** - basic read-only view of the value (e.g. view issue, move issue confirm screen)
2. **`column-view`** - read-only view for displaying in the issue navigator. will default to *view* if omitted
3. **`edit`** - renders the edit widget for the custom field (e.g. edit issue, edit defaults)
4. **`xml`** - xml view of the value (e.g. rss, xml views)

The values of these templates are usually Velocity template files that are either standard JIRA `.vm` files, or ones written for the custom field and reside in your `templates` directory. Make sure that their names are unique.

Linking the Java code and rendering views are the plugin-module descriptors in your **`atlassian-plugin.xml`**. They allow JIRA to recognise what custom fields are available to the system and how to render them.

Example module descriptor

```
<atlassian-plugin key="com.atlassian.jira.plugin.customfield.example" name="JIRA Customfields
Examples Plugin">
<plugin-info>
<description>Customfields Examples Plugin.</description>
<version>1.0</version>
<application-version min="3.3" max="3.3"/>
<vendor name="Atlassian Software Systems Pty Ltd" url="http://www.atlassian.com"/>
</plugin-info>

<customfield-type key="textarea" name="Free Text Field (unlimited text)"
class="com.atlassian.jira.issue.customfields.impl.TextAreaCFType">
<description>A multiline text area custom field to allow input of longer text
strings.</description>

<resource type="velocity" name="view" location="templates/plugins/fields/view/view-basictext.vm"/>
<resource type="velocity" name="column-view"
location="templates/plugins/fields/view/view-limited-text.vm"/>
<resource type="velocity" name="edit" location="templates/plugins/fields/edit/edit-textarea.vm"/>
<resource type="velocity" name="xml" location="templates/plugins/fields/xml/xml-basictext.vm"/>
</customfield-type>
</atlassian-plugin>
```

You can also take a look at the default custom fields that shipped with JIRA here.

Information about setting up a complete plugin development environment for a plugin can be found here.
You can compile the examples below in the same way.

Examples

Admin-only editable field

For the first example, we'll construct a custom field that is only be editable by JIRA administrators and appear as a plain text to others. This is a simple customisation of the shipped `TextCFType` field and can be customized by changing one template and extending TextCFType in a new class. Step 1. Create a Plugin Skeleton is a good starting point.

First, we need to extend TextCFType. After creating and testing the skeleton by itself, edit MyPlugin.java like so (notice namespace.packagename.MyPlugin is this example's namespace and class name):

```
package namespace.packagename;

import com.atlassian.jira.issue.customfields.converters.StringConverter;
import com.atlassian.jira.issue.customfields.impl.TextCFType;
import com.atlassian.jira.issue.customfields.manager.GenericConfigManager;
import com.atlassian.jira.issue.customfields.persistence.CustomFieldValuePersister;

public class MyPlugin extends TextCFType {

 public MyPlugin(CustomFieldValuePersister customFieldValuePersister,
 StringConverter stringConverter,
 GenericConfigManager genericConfigManager) {

 super(customFieldValuePersister, stringConverter, genericConfigManager);
 }
}
```

Second, we need to add the module to the `atlassian-plugin.xml file`:

```
...
<customfield-type key="admintextfield" name="Admin Editable Text Field"
class="namespace.packagename.MyPlugin">
<description>A text field only editable by JIRA-administrators. Others will see only
text.</description>
<resource type="velocity" name="view" location="templates/plugins/fields/view/view-basictext.vm"/>
<resource type="velocity" name="edit" location="templates/edit-jiraadminonlytext.vm"/>
<resource type="velocity" name="xml" location="templates/plugins/fields/xml/xml-basictext.vm"/>
</customfield-type>
...
```

A few points:

- *key* must uniquely identify the module in this plugin file.
- *name* & *description* are displayed when creating a new custom field instance

This module definition exactly matches that of a standard text field except for one line.

```
<resource type="velocity" name="edit" location="templates/edit-jiraadminonlytext.vm"/>
```

We are customizing the edit Velocity template so that it displays as a text box for an administrator but appears as uneditable text for others. Source for **`edit-jiraadminonlytext.vm`** is below.

edit-jiraadminonlytext.vm

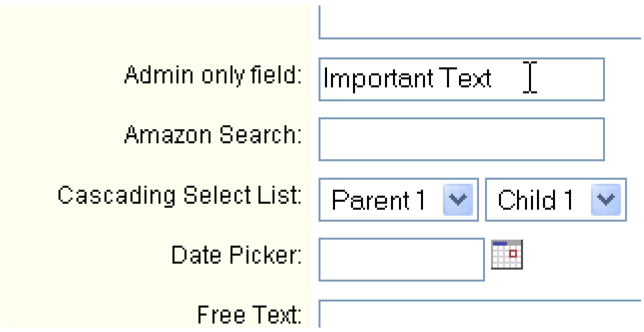
```
#controlHeader ($action $customField.id $customField.name $fieldLayoutItem.required
$displayParameters.noHeader)

#if ($authcontext.user.inGroup('jira-administrators'))
<input type="text"
name="$customField.id"
value="$!value" />
#else
#if($value && ! $value.equals(""))
#set ($displayValue = ${value})
#else
#set ($displayValue = 'N/A')
#end
<span title="This field is editable only by JIRA administrators">$!displayValue</span>
<input type="hidden"
name="$customField.id"
value="$!value" />
#end
#controlFooter ($action $fieldLayoutItem.fieldDescription $displayParameters.noHeader)
```

The above template checks if the user is part of group *jira-administrators*. If they are, display the text box, else display the value only as uneditable text.

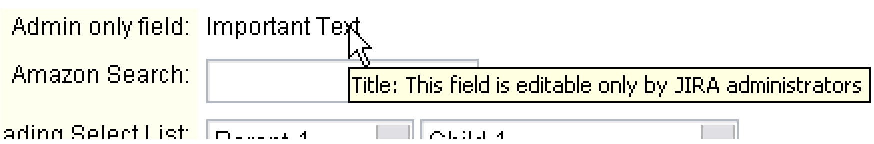
There's a few points to note.

- For what variables are available for a custom field you should check out the velocity context guide.
- #controlHeader and #controlFooter provide each custom field with the appropriate label and surrounding HTML table tags. This is required for all edit templates.
- Note: **edit-jiraadminonlytext.vm** needs to be in in a directory named templates/, in the same directory as atlassian-plugin.xml (which may need to be created if starting from Step 1. Create a Plugin Skeleton).

And that's it. Rebuild the plugin, deploy the JAR, login as an administrator and you should see it in the list of plugins. Once enabled, look for the custom field under 'Administration -> Issue Fields -> Custom Fields -> Add Custom Field.' Once added, log in as a normal user as well to test it out.



Logged in as an admin



Logged in as a non-admin

Last commented user calculated field

The next example deals with a *Calculated Custom Field*. Calculated don't actually store any values. You often want or need this when you want to search on fields not normally available in JIRA, but the information can be derived. In this case, we want to return the last user who commented on the issue, if they are not an administrator. We only want this field to be visible in the issue navigator and not the edit or view pages.

Coding the Custom Field Type

Before you implement the interface CustomFieldType you should check out the latest javadoc. A useful extension point for calculated custom fields is, unsurprisingly, CalculatedCFType, where only three methods need to be implemented (getStringFromSingularObject, getSingularObjectFromString, and getValueFromIssue). If you also choose to implement SortableCustomField you will need to implement compare() as well.

The key method used to retrieve the value of our custom field is getValueFromIssue.

```
public Object getValueFromIssue(CustomField field, Issue issue)
{
    User currentUser = authenticationContext.getUser();
    User lastUser = null;
    try
    {
        List comments = actionManager.getComments(issue.getGenericValue(), currentUser);
        if (comments != null && !comments.isEmpty())
        {
            Comment lastComment = (Comment) comments.get(comments.size()-1);
            User commenter = lastComment.getUser();
            if (!commenter.inGroup(JIRA_ADMIN))
            {
                lastUser = commenter;
            }
        }
   }
   catch (GenericEntityException e)
   {
     // Handle this
   }

   return lastUser;
}
```

Note that prior to 3.3, the method had a GenericValue as the issue parameter. If you're developing for those JIRA versions make sure you correct your method signatures.

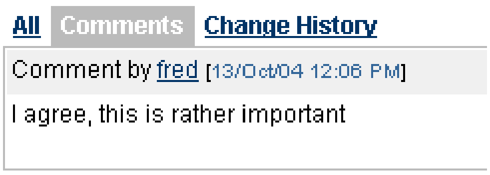
The return type `Object` is also known as the **Transport Object**. In this instance it is of type `User`, but it could be any other type. The Transport type must remain consistent across all methods such as create, update and also the view and edit templates.

Wiring it together

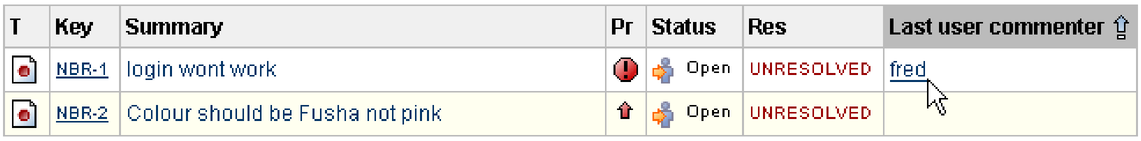
Much like the previous example, we can reuse some of the the templates that ship with JIRA.

```
<customfield-type key="lastusercommented" name="Last user commenter"
class="com.atlassian.jira.plugin.customfield.example.LastUserCommentedCFType">
<description>This is a lookup field that displays the last commenter who is not a JIRA
administrator</description>
<resource type="velocity" name="column-view"
location="templates/plugins/fields/view/view-user.vm"/>
<resource type="velocity" name="xml" location="templates/plugins/fields/xml/xml-user.vm"/>
</customfield-type>
```

We can omit any resource types that we don't require. Thus both the edit and view templates are omitted here. The field should only appear when viewing through the issue navigator (column-view) and XML/RSS views (xml). The view user adds a link to the user details page and displays the full user name.



Fred is the last commenter



T	Key	Summary	Pr	Status	Res	Last user commenter
	NBR-1	login wont work		Open	UNRESOLVED	fred
	NBR-2	Colour should be Fusha not pink		Open	UNRESOLVED	

View in issue navigator

Enable Searching

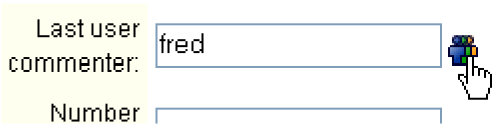
The last commenter field in itself isn't all that useful. While we can see it in on the issue navigator, we can't search for a particular user who commented it last. Searching in JIRA is handled by `CustomFieldSearchers`. Again several pre-configured searchers are available. You must ensure that the Transport Object are compatible between the custom field and the custom field searcher. Thus we can only use the UserPicker searcher since this is the only one that indexes User objects.

```
<customfield-searcher key="userpickersearcher" name="User Picker Searcher"
    i18n-name-key="admin.customfield.searcher.userpickersearcher.name"
    class="com.atlassian.jira.issue.customfields.searchers.UserPickerSearcher">
    <description key="admin.customfield.searcher.userpickersearcher.desc">Allow to search for a
user using a userpicker.</description>
    <resource type="velocity" name="label"
location="templates/plugins/fields/view-searcher/label-searcher-user.vm"/>
    <resource type="velocity" name="search"
location="templates/plugins/fields/edit-searcher/search-userpicker.vm"/>
    <resource type="velocity" name="view"
location="templates/plugins/fields/view-searcher/view-searcher-basictext.vm"/>

    <valid-customfield-type package="com.atlassian.jira.plugin.customfield.example"
key="lastusercommented"/>
</customfield-searcher>
```

This is quite similar to the CustomFieldType definition. The tag *valid-customfield-type* is used to associate the searcher to any number of custom field types. **`Package`** refers to the atlassian-plugin key attribute at the top of a plug-in and and the **`key`** refers to the module/customfield key.

Now when you create/edit your Last User Commented custom field, you'll be able to select the User Picker as a search template. You can now search on the last commenter field in the issue issue navigator.

Important When you change a search template for a custom field, you may need to perform a reindex before the search will work correctly. This issue is being tracked at JRA-4641.



Searching enabled

Sorting in Issue Navigator

To enable sorting you simply need to implement the interface **`SortableCustomField`**

```
public class LastUserCommentedCFType extends AbstractCustomFieldType implements
SortableCustomField
```

The interface simply extends Comparable, so you need to implement the compare method.

```
public int compare(Object customFieldObjectValue1, Object customFieldObjectValue2,
CustomFieldConfig customFieldConfig)
{
return new BestNameComparator().compare(customFieldObjectValue1, customFieldObjectValue2);
}
```

The BestNameComparator is a simple helper type to facilitate comparing two users. You could just as easily write your own custom compare method.

Amazon search plugin

Lastly, a frivolous plug-in to give you some ideas on how to implement custom fields that perform remote look ups. Basically, we want a custom field that will take a text string and display a results from a search through the Amazon. There are several approaches to this, but by simplest solution is to treat the stored value as a simple text field and then add a *viewHelper* object that effectively transforms the string into the desired result.

Coding and Attaching the view helper

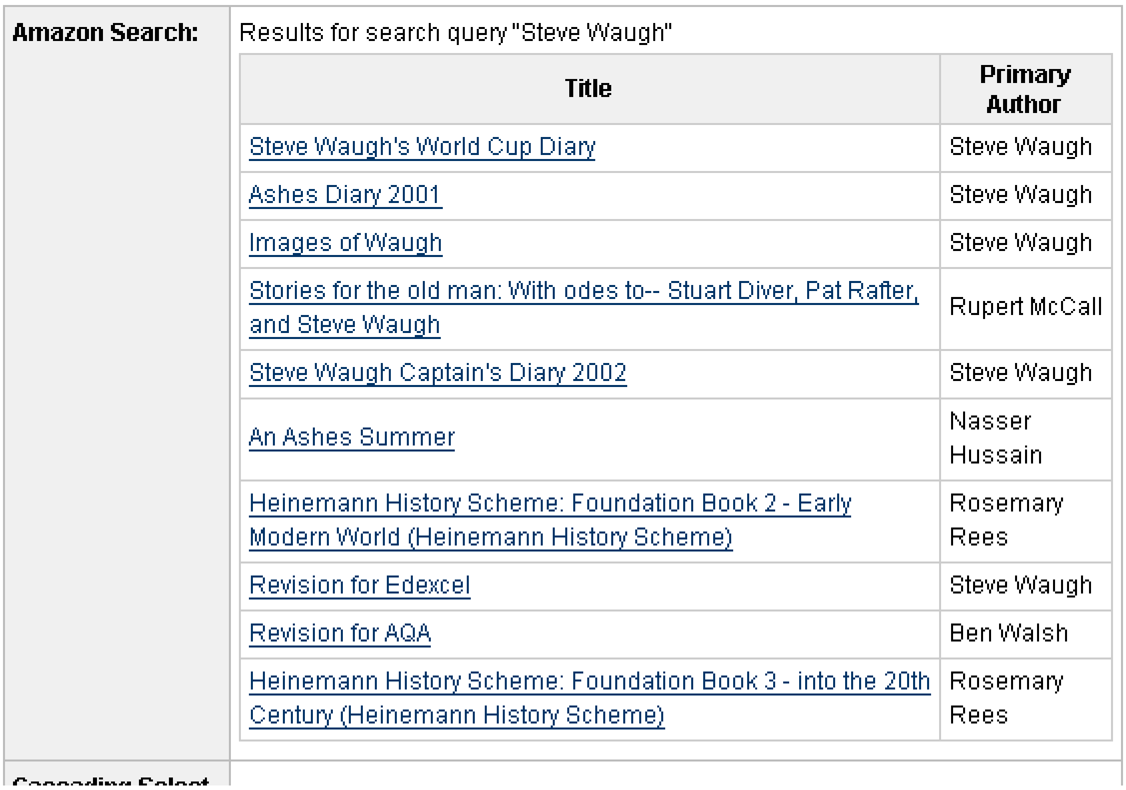
First we need to code our Amazon view helper. You can take a look in the source, but how it's been implemented isn't all that relevant. Once we have the view helper, we can pass this helper to the Velocity templates through the method *getVelocityParameters*

```
public Map getVelocityParameters(Issue issue)
{
Map map = new HashMap();
map.put("amazonSearchViewHelper", new AmazonSearchViewHelper());
return map;
}
```

The object `AmazonSearchViewHelper` is now accessible the velocity template. It has the method `searchForBooks` which returns a list of Books given some key words. We simply invoke this helper method in the template and display the results in a table.

```
#if ($value)
Results for search query "${value}" <br />

<table class="grid">
<tr>
<th>Title</th>
<th>Primary Author</th>
</tr>
#foreach ($book in $amazonSearchViewHelper.searchForBooks($value))
<tr>
<td><a target="_new" href="${book.link}">${book.title}</a></td>
<td>${book.firstAuthor}</td>
</tr>
#end
</table>
#end
```

You can utilise this same idea to display data from other remote systems, or even combine it with the readonly field to create your very own remote custom field.


Amazon Search: Results for search query "Steve Waugh"

Title	Primary Author
Steve Waugh's World Cup Diary	Steve Waugh
Ashes Diary 2001	Steve Waugh
Images of Waugh	Steve Waugh
Stories for the old man: With odes to-- Stuart Diver, Pat Rafter, and Steve Waugh	Rupert McCall
Steve Waugh Captain's Diary 2002	Steve Waugh
An Ashes Summer	Nasser Hussain
Heinemann History Scheme: Foundation Book 2 - Early Modern World (Heinemann History Scheme)	Rosemary Rees
Revision for Edexcel	Steve Waugh
Revision for AQA	Ben Walsh
Heinemann History Scheme: Foundation Book 3 - into the 20th Century (Heinemann History Scheme)	Rosemary Rees

Confluence Page Link custom field

> ⚠ This plugin is available here - and is not included in the jira-development-kit.

The 'Confluence Page Link' custom field plugin provides an example of implementing a custom field that performs a remote look up through XML/RPC..

This custom field provides a pop-up searcher - allowing the user to enter a search query that is executed over publicly accessible pages within a specified Confleunce instance. The user can select a result and the URL of thatpage is stored in the custom field - a simple text field. The Confluence instance to search against is specified in a properties file.

A new webwork action 'ConfluencePageBrowserAction' is required - allowing the popup window view to be associated with the action that performs and returns results from the Confluence page search.

The webwork action is registered in the atlassian-plugin.xml file as follows:

```
<webwork1 key="confluencepagebrowseraction" name="Confluence Page Browser Action"
class="java.lang.Object">
<actions>
<action name="com.atlassian.jira.plugin.confluencelinker.ConfluencePageBrowserAction"
alias="ConfluencePageBrowser">
<view name="success">/templates/confluence_page_browser.vm</view>
</action>
</actions>
</webwork1>
```

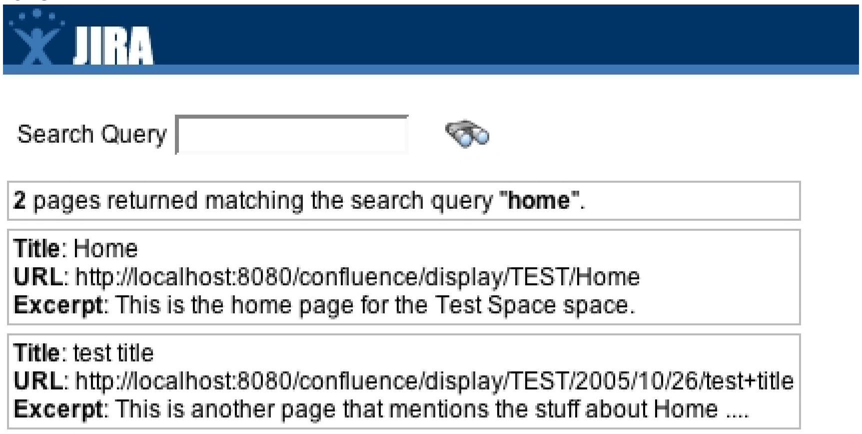
The ConfluencePageBrowserAction class is where the search logic is coded:

```
XmlRpcClient rpcClient = new XmlRpcClient(confluenceURL);
Vector xmlrpcResults = (Vector) rpcClient.execute("confluence1.search",
makeParams(getSearchQuery(), 100));
if (xmlrpcResults != null)
{
earchResults = new ArrayList();
for (Iterator iterator = xmlrpcResults.iterator(); iterator.hasNext();)
{
Hashtable xmlrpcResult = (Hashtable) iterator.next();
searchResults.add(new SearchMatch(xmlrpcResult));
}
...
```

The Confluence page browser template displays the search query text box and the results:

```
#foreach ($result in $action.getSearchResults())
<tr onmouseover="rowHover(this)" onclick="selectLink('$result.getUrl()')">
<td>
<div class="borderedbox">
<b>Title</b>:   $result.getTitle()<br>
<b>URL</b>:     $result.getUrl()<br>
<b>Excerpt</b>: #if($result.getExcerpt())$result.getExcerpt() #else None #end
</div>
</td>
</tr>
```

The popup appears as follows:



How to create Custom Workflow Elements for JIRA 3

Overview

JIRA 3 provides the ability to create fully customized workflows - giving the user full control over the life cycle of a JIRA issue. This powerful feature allows the workflow designer to specify:

- the available actions at each step
- the users/groups who can execute a workflow transition
- functions that are executed on completion of a workflow transition

This tutorial focuses on the **Condition** and **Post Function** elements of a workflow - with an example of creating a custom condition and post function, and how they are integrated with JIRA through the plugin system.

The JIRA documentation contains further detailed information on workflows.

Also, the following documents expand on working with the JIRA plugin system:

- JIRA Plugin Guide
- How to create a new Custom Field Type
- Vincent Massol's tutorial

Plugin Structure

In order to make a custom workflow element (e.g condition, post-function) available within JIRA, it is necessary to create a workflow plugin module. As with all plugin modules, the workflow plugin will consist of the following components:

- Java classes encapsulating workflow element logic
- Resource templates for display of the workflow element
- Plugin descriptor to enable the workflow module in JIRA

all contained within a single JAR file.

Each element is further discussed in the examples below.

Jira Plugin Development Kit

The full source for each example is available in the JIRA Plugin Development Kit.

Using the JIRA Plugin Development Kit, it is possible to navigate to the workflow example directory and build the workflow example JAR file with the command:

maven jar

The resulting JAR file contains all the workflow examples discussed here. The workflow example plugin becomes available once the JAR file is copied to the JIRA *lib* directory.

Workflow Conditions

A **Condition** restricts the execution of a workflow transition until certain criteria are met. If the **Condition** fails, the transition link will not be available on the 'View Issue' page.

This section of the tutorial focuses on the **Condition** element and provides an example custom **Condition** which can be plugged into JIRA.

JIRA 3 System Conditions

JIRA 3 provides a number of system conditions available on setup - *DisallowIfInStepCondition*, *AllowOnlyAssignee*, *IssueAssignedCondition*, etc - each allowing the user to define when a worklfow transition becomes available.

The *SubTaskBlockingCondition* (another system condition) determines if a transition is available for an issue based on the status of its associated sub-tasks. The user specifies a list of statuses that will permit the transition to be available.

For example, the 'Close Issue' workflow transition link for an issue can be conditioned to be only available if all related sub-tasks are associated with the 'Closed' status. In effect, this transition link is not available for the parent issue until all sub-tasks are closed.

Custom Workflow Conditions

For developers designing a custom workflow condition, we recommend that the custom condition class extend the JIRA *AbstractJiraCondition* class. In order to avoid multiple database calls to retrieve the original issue object for the condition check, there are two possibilities available to the condition designer. Firstly, the custom condition class can overwrite the following method:

```
Issue getIssue(Map transientVars)
```

The logic within this method should retrieve the original issue object as required.

Alternatively, if the getIssue method is not overwriten, it is possible to pass the original issue object to the *transientVars* map, for example:

```
GenericValue origianlIssueGV =
ComponentManager.getInstance().getIssueManager().getIssue(issue.getId());
fields.put(AbstractJiraCondition.ORIGNAL_ISSUE_KEY, IssueImpl.getIssueObject(origianlIssueGV));
```

In this instance, the *fields* object will be passed to the *getIssue* method as the *transientVars* map.

This ensures that the original issue is examined during the condition check and minimal database calls are made.

Example - Parent Issue Blocking Condition

This example provides the reverse condition of the *SubTaskBlockingFunction* - in that it determines if a transition is available for a sub-task based on the status of its associated parent issue.

In this example, the condition has been configured to display the workflow transition 'Reopen' for a sub-task, only if the parent issue is associated with an unresolved status (e.g. 'Open', 'In Progress' , Unresolved').

The condition is applied to the 'Reopen' transition in a copy of the default JIRA workflow associated with the 'Sub-Task' issue type.

In effect, the condition will prevent the transition for any sub-task from the 'Closed' to the 'Reopened' status, if the parent issue is not associated with an unresolved status.

Condition Logic

The condition logic is contained in the class *ParentIssueBlockingCondition* class that implements the interface *Condition*.

The only method requiring implementation is the *passesCondition(...)* method. Within this example, this method retrieves the parent issue and then determines if its associated status is contained in the user specified list of statuses. The condition passes if the specified list of statuses contains the status associated with the parent issue.

The list of statuses is specified when adding the workflow condition to a transition.

The class *WorkflowParentIssueBlockingConditionFactoryImpl* is also included - this class manages passing the required parameters to the resource templates.

Condition Resources

The workflow condition requires a number of resources in order to display the input, edit and view screens.

In this example, a velocity template is provided for each screen:

- *templates/issueblockingcondition/issueblockingcondition-input-params.vm*
- *templates/issueblockingcondition/issueblockingcondition-edit-params.vm*
- *templates/issueblockingcondition/issueblockingcondition-view.vm*

allowing the user to initially specify the statuses which will result in a 'pass', to edit these statuses and also a screen displaying the selected statuses.

Plugin Descriptor

As with all plugins, the workflow condition must be defined in a file named *atlassian-plugin.xml* and be located in the root of the JAR file.

The definition of the *ParentIssueBlockingCondition* condition is as follows:

```
<atlassian-plugin key="com.atlassian.jira.plugin.workflow.example" name="Workflow Examples
Plugin">
<plugin-info>
<description>Example JIRA Workflow Elements</description>
<version>1.0</version>
<application-version min="3.0" max="3.0"/>
<vendor name="Atlassian Software Systems Pty Ltd" url="http://www.atlassian.com"/>
</plugin-info>

<workflow-condition key="issueblocking-condition" name="Parent Issue Blocking Condition"
class="com.atlassian.jira.plugin.workflow.example.WorkflowParentIssueBlockingConditionFactoryImpl"> <
to block sub-task issue transition depending on
parent issue status.</description>

<condition-class>
com.atlassian.jira.plugin.workflow.example.condition.ParentIssueBlockingCondition</condition-class>
type="velocity" name="view"
location="templates/issueblockingcondition/issueblocking-condition-view.vm"/>
<resource type="velocity" name="input-parameters"
location="templates/issueblockingcondition/issueblocking-condition-input-params.vm"/>
<resource type="velocity" name="edit-parameters"
location="templates/issueblockingcondition/issueblocking-condition-edit-params.vm"/>
</workflow-condition>
</atlassian-plugin>
```

The workflow condition entry specifies the key, name and the Workflow Condition Factory for this condition. The factory class provides methods for passing input, edit and view parameters to the view templates. The condition description is also specified.

The class containing the condition logic, *ParentIssueBlockingCondition*, is specified next in the *<condition-class>* tag.

Finally, the location of the resource templates are specified - with an individual template for input, edit and view screens.

Parent Issue Blocking Condition - In Action

Once the workflow example JAR file has been placed in the JIRA *lib* directory, the **Parent Issue Blocking Condition** is now available as a condition within the workflow editor.

Workflow Post Functions

A **Post Function** executes specifed actions immediately after a transition is executed (hence the name post-function). Example possible actions include updating issue fields, generating change history, adding a comment, generating an event that signals that an issue has been progressed through workflow, etc.

This section of the tutorial focuses on the **Post Function** element and provides an example **Post Function** which can be plugged into JIRA.

JIRA 3 System Post Functions

JIRA 3 provides a number of system post functions available on setup - *UpdateIssueStatusFunction*, *CreateCommentFunction*, etc - each allowing the user to specify that certain actions should be executed following a specific workflow transition.

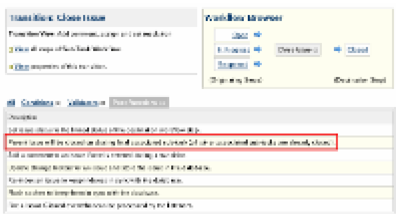
Note: Certain JIRA system post functions cannot be edited, deleted or ordered, as they must be executed during every transition. These post functions are essential for JIRA's issue life cycle, and would compromise other functionality if not executed.

Example - Close Parent Issue Post Function

This example post function will close the parent issue once the final sub-task is closed (all other associated sub-tasks are already closed).

The post function will ensure that the parent issue is still open and that all other associated sub-tasks are also closed before attempting to close the parent issue.

The post function can be applied to the 'Close Issue' transition in a copy of the default JIRA workflow associcated with the 'Sub-Task' issue type.



Post Function Logic

The post function logic is contained in the class *CloseParentIssueFunction* class that implements the interface *FunctionProvider*.

The *execute* method retrieves the sub-task from the parameters. From this, the parent issue is determined and a check is made as to whether the parent issue is closed or not.

If the parent issue is not closed, the statuses of the rest of the associated sub-tasks are also checked. If all sub-tasks are closed, the parent issue can be closed.

This function does not require any input or configuration - the action to be executed is defined within the post function logic.

The only user input required is to associate the post function with a particular transition within a workflow.

Post Function Resources

This post function only requires a view template as there is no configuration or editing required.

The velocity template is provided for the view screen:

- *templates/closeparentfunction/closeparentissue-function-view.vm*

Plugin Descriptor

As with all plugins, the post function condition must be defined in a file named *atlassian-plugin.xml* and be located in the root of the JAR file.

The definition of the *CloseParentIssueFunction* condition is as follows:

```
...
<workflow-function key="closeparentissue-function" name="Close Parent Issue Function"
class="com.atlassian.jira.plugin.workflow.WorkflowNoInputPluginFactory">
<description>Closes the parent issue on closing final associated
sub-task (all other sub-tasks are closed).</description>

<function-class>
com.atlassian.jira.plugin.workflow.example.function.CloseParentIssueFunction</function-class>

<orderable>true</orderable>
<unique>true</unique>
<deletable>true</deletable>
<default>true</default>

<resource type="velocity" name="view"
location="templates/closeparentfunction/closeparentissue-function-view.vm"/>
</workflow-function>
...
```

Here, the WorkflowNoInputPluginFactory class must implement WorkflowPluginFunctionFactory.

The post function entry specifies the key, name and the Post Function Factory for this condition. The factory class provides methods for passing parameters to the view templates - in this case, no parameter passing is required. The post function description is also specified.

The class containing the post function logic, *CloseParentIssueFunction*, is specified next in the *<function-class>* tag.

It is also possible to configure the post function as it appears in the workflow editor. The following options can be specified:

- orderable - specifies if this post function can be re-ordered within the list of post functions associated with a transition. The postion within the list determines when the post function actually executes.
- unique - specifies if this post function is unique or not - i.e. if it is possible to add multiple instances of this post function on a single transition.
- deleteable - specifies if the post funtion can be removed from a transition.
- default - specifies if this post function is automatically associated with any new transitions created.

It is also possible to specify a *weight* configuration parameter - however this is mainly intended for JIRA system post function elements. This parameter is used in conjunction with the *default* parameter - if the post function is to be added to all new transitions, the *weight* parameter is used to determine the post function position within the post function list.

Finally, the location of the resource view template is specified.

Close Parent Issue Post Function - In Action

Once the workflow example JAR file has been placed in the JIRA *lib* directory, the **Close Parent Issue Post Function** is now available as a post function within the workflow editor.

Custom Workflow Condition Skeleton

This is a 'general' workflow condition skeleton which can be used to call the example condition subroutines which link to this page.

Some conditions will use different parameters than what's used in this example.

blockingLinksClosed subroutine

```
package com.newisys.jira.workflow.condition;

import org.apache.log4j.Category;
import org.ofbiz.core.entity.GenericValue;
import org.ofbiz.core.entity.GenericEntityException;

import com.opensymphony.workflow.Condition;
import com.opensymphony.workflow.spi.WorkflowEntry;
import com.opensymphony.module.propertyset.PropertySet;

import com.atlassian.jira.ManagerFactory;
import com.atlassian.jira.ComponentManager;
import com.atlassian.jira.issue.link.IssueLink;
import com.atlassian.jira.issue.link.IssueLinkType;

import java.util.Map;
import java.util.List;

import java.util.Iterator;
import java.util.Collection;

/**
 * Passes if all subtask issues have current status equal to passed status id
 *
 *  required argument 'closedstate'
 */
public class BlockingLinksClosedCondition implements Condition
{
    private static final Category log = Category.getInstance(BlockingLinksClosedCondition.class);

    public boolean passesCondition(Map transientVars, Map args, PropertySet ps)
    {
        try
        {
            WorkflowEntry entry = (WorkflowEntry) transientVars.get("entry");
            GenericValue issue = null;
            try
            {
                issue = ManagerFactory.getIssueManager().getIssueByWorkflow(new
Long(entry.getId()));
            }
            catch (GenericEntityException e)
            {
                log.error("Exception: " + e, e);
                return false;
            }

            // Get the id of the workflow
            String closedState = (String) args.get("closedstate");
            if (closedState == null) throw new IllegalArgumentException("Must specify a
'closedstate' arg specifying ids of valid states");

RETURN RESULT OF CALL TO WORKFLOW CONDITION SUBROUTINE

        }
        catch(Exception e)
        {
            log.error("Exception: " + e, e);
            return false;
        }

        return true;
    }
}
```

Keep Issue Open Until Everything Blocking It Is Closed

This custom subroutine can be used to not allow users to transition an issue which is linked via linktype 'Blocking' to issues not in a user specified state. (you could easily extend this routine to allow the linktype to be user-specified as well)

When using the condition in a JIRA workflow the user must supply a single parameter 'closedstate' which contains the 'id' primary key value (1 or more, comma separated) of the issue state(s) the linked issues must be in to allow the workflow transition.

One big shortcoming to this simple task - no overriding of the condition is possible. In itself this is ok as you can just have it in a 'or' clause with an additional check for the groups the user is a member of. If however you wish to have more complicated logic - i.e.:

if (the user is a member of project-admin group AND all subtasks are closed) OR (user is a jira-administrator)

you have to create a 'meta-condition' class which contains the logic for the 'and' conditions. There is supposed to be a supported syntax with the JIRA 3.0.3 opensymphony osworkflow library but I haven't determined what this is yet.

> **How to use**
> Every transition that used this condition required complex if/else logic so I had to create a 'meta-condition' which contained calls to multiple conditionals. You environment might differ. Regardless, to use this condition call it from a java class as shown in the skeleton at the linked page shown below.

Custom Workflow Condition Skeleton -> go here to get frame to use below subroutine.

blockingLinksClosed subroutine

```
public boolean blockingLinksClosed( GenericValue issue
                                       , String linkValidStates )
    {
        try
        {
            // Inward links are links made from other issues to the passed 'issue'
            List inwardLinks =
ComponentManager.getInstance().getIssueLinkManager().getInwardLinks(issue.getLong("id"));

            // Make sure all linked issues of link type equal to passed link name
            for (int i = 0; i < inwardLinks.size(); i++)
            {
                IssueLink link = (IssueLink) inwardLinks.get(i);
                //log.error("issueLinkName: " + link.getIssueLinkType().getName());
                if("Blocking".equals(link.getIssueLinkType().getName()))
                {
                    String issueStatus = ((GenericValue ) link.getSource()).getString("status");
                    //log.error("issueStatus: " + issueStatus);

                    boolean isClosed = false;
                    String[] validStates = linkValidStates.split(",");
                    for (int j = 0; j < validStates.length; j++)
                    {
                        String validState = validStates[j];
                        if(issueStatus.equals(validState))
                        {
                            //log.error("  validState: " + validState);
                            isClosed = true;
                            break;
                        }
                    }
                    //log.error("  returning: " + isClosed);
                    return isClosed;
                }
            }
            return true;
        }
        catch(Exception e)
        {
            log.error("Exception verifying all blockingLinks are closed: " + e, e);
            return false;
        }
    }
```

Install Instructions

You can deploy this subroutine into your instance by wrapping it in a custom workflow element plugin.

How to create a JIRA Report

- For JIRA 4.0 and later, please see Plugin Tutorial - Creating a JIRA Report
- For JIRA 3.x, please see How to create a JIRA Report

JIRA REST API (Alpha) Tutorial

Available:	JIRA 4.2 and later

- JIRA REST API Overview
- Introduction to JIRA's REST API
  - JIRA's REST API is Evolving
  - Focus of the Initial JIRA REST API
- JIRA REST API Implementation
  - URI Structure
  - User Authentication
    - Logging In
    - Logging Out
    - Cookies Expire
    - CAPTCHAs
  - JIRA REST API Responses
    - Simple Issue Response
    - Expandable Properties
    - Self Links
    - Top-Level Issue Information
    - Fields
    - Rendering
    - Modifying JIRA Data
- Comprehensive Examples
  - Example #1: Graphing Image Links
  - Example #2: Quickview Inline Dialog Plugin
  - Further reading
- JIRA REST clients

JIRA REST API Overview

JIRA's REST API is for anyone who wants to interact with JIRA in a programmatic fashion. This could be developers who want to integrate their software or other Atlassian applications with JIRA, system administrators who want to automate a JIRA feature or process, or developers who want to write gadgets or mashups for JIRA.

The goal is to make JIRA's REST API a superset of everything one can currently achieve with SOAP and XML-RPC, while gradually adding the rich functionality desired by JIRA developers. SOAP and XML-RPC are not going away anytime soon. However, our goal is to eventually make REST the "Remote API of Choice", when working with JIRA.

> This document does not explain everything that can be done with REST. You should always refer to the canonical JIRA REST API documentation for full details on what resources are available, what HTTP methods they support and what the content of requests and responses will be.

Introduction to JIRA's REST API

JIRA's REST API provides access to a number of resources that are accessible via normal URLs. JIRA's response format is JSON. Because REST is built off the same technologies as the web itself, you generally do not need complicated libraries to use it. In fact, you can start exploring JIRAs REST API simply through your web browser.

> **Why only provide JSON responses and not XML?**
>
> Just like everyone else in the real world, we're faced with time and resource constraints. Supporting two serialisation formats requires more time than just a single one. Hence, for our initial release of the JIRA REST API, we decided to provide "more stuff in JSON" rather than "less stuff in JSON and XML".

JIRA's REST API is Evolving

JIRA's REST API covers a handful of functions that return specific details about JIRA issues, users and other JIRA configurations. While full APIs have permanence and stability, we cannot promise this of JIRA's early REST APIs, until we incorporate sufficient feedback from the JIRA development community, after which we can produce a comprehensive and useful API.

> While we do not wish to make significant changes to JIRA's REST API 'points', we want to incorporate feedback from the community as early as possible to make a better, stronger and more useful method for interacting with JIRA. Consequently, there is a possibility that some of these points (or their behaviour) might change in subsequent versions.

Throughout this document we'll highlight some of the areas which are still being fine tuned. If you have feedback or suggestions for JIRA's REST API, please submit them through our public JIRA site. Marking them with a component of "Remote API (REST)" is the fastest way to bring them to the attention of JIRA's developers and product managers.

Focus of the Initial JIRA REST API

Since an **Issue** is the heart of JIRA, this was the focus of our initial JIRA REST API. A JIRA issue itself provides access to a lot of information about a JIRA installation, such as details on users, groups, security levels, worklogs, voting, watching, workflow transitions and so on.

You can access the following details associated with an issue using JIRA's REST API:

- Issue links (incoming and outgoing)
- Timetracking information (original estimate, remaining estimate, and time spent)
- The parent task or subtask of an issue
- Who is watching an issue or has voted on it
- The worklog for an issue
- What workflow transitions are valid for the issue's current status

JIRA REST API Implementation

This section provides some background information about JIRA's REST API:

- Its URI structure
- The significance of user authentication and associated caveats
- Details about JIRA's REST API responses and expanded properties

URI Structure

The format of all REST URIs in JIRA is:

```
http://hostname/rest/<api-name>/<api-version>/<resource-name>
```

JIRA's REST API is provided by a plugin that is anchored under the URI path component `/rest/`. Hence, if your JIRA site is running at:

```
http://example.com/jira
```

Then the anchor point for REST will be:

```
http://example.com/jira/rest
```

The `<api-name>` part of the URI is the name of the JIRA REST API, which is simply `api`. The names of other APIs in JIRA include `internal`, `gadget` and `auth`. With the exception of `auth` (see User Authentication below for more information), these are intended primarily for internal use within JIRA and not for external consumption.

Each version of a REST API is indicated by the `<api-version>` part of the URI. Since the JIRA REST API is likely to evolve, we hope to provide as much backward compatibility as possible.

About JIRA REST API versions:

The current version of the JIRA REST API is "2.0.alpha1", which, as the name indicates, is currently in alpha. This is the first true JIRA REST API for external consumption because version "1.0" of the JIRA REST API (released with JIRA 4.0) was intended for internal use and was not widely publicised or documented.

Once we've received enough feedback from the community about this API, we'll move JIRA's REST API out of alpha and declare version "2.0" final and 'frozen in time'. Future versions of the JIRA REST API would be significantly different and incompatible with earlier JIRA REST API versions. Consequently, they would be designated a different `api-version`, such a "3.0". The shortcut `api-version` of "latest" will give you the current version, which is "2.0".

The final part of the URI is the `<resource-name>`. This is the actual REST API "resource" itself that determines what response you will receive. A REST resource is analogous to an object in OO programming or a database row in a database system. JIRA's REST API resources have names like "issue", "user" or "attachment".

Different resources may expect additional path parameters, often to identify an individual resource. For instance, putting all of the above together, the URI to an issue with the key MKY-1 would look like:

```
http://hostname/rest/api/2.0.alpha1/issue/MKY-1
```

User Authentication

JIRA's REST API is protected by the same restrictions which are provided via JIRAs standard web interface. This means that if you do not log in, you are accessing JIRA anonymously. Furthermore, if you log in and do not have permission to view something in JIRA, you will not be able to view it using the JIRA REST API either.

In most cases, the first step in using the JIRA REST API is to authenticate a user account with your JIRA site.

Logging In

At the moment there are two ways to authenticate via REST:

- HTTP BASIC Authorisation
- HTTP Cookies

BASIC Authorisation is often simpler to use. However, your username and password are sent as headers in every request you make. This means the use of HTTPS is almost always mandatory when using BASIC Authorisation. If you are running on a trusted intranet site and understand and accept the risks associated with user credentials being sent in headers, then standard (unsecured) HTTP may be acceptable.

If you decide to use HTTP Cookies, you need to send the correct cookie header along with every request. Depending on the tools and libraries you use, this may vary in difficulty. The first step is to actually get a cookie from JIRA, which is done via the JIRA "auth" API, which is accessible via the URI anchor point of the JIRA REST API:

```
http://hostname/rest/auth/
```

The only "auth" resource available is "session", so you will be interacting with:

```
http://hostname/rest/auth/latest/session
```

To log in to JIRA, you need to **POST** a username and password in JSON format. Here is how you would do this with cURL.

```
curl -c cookie_jar -H "Content-Type: application/json" -d '{"username" : "admin", "password" :
"admin"}' http://localhost:8090/jira/rest/auth/latest/session
```

cURL is a useful tool which allows you to call and pass parameters to URLs directly from the command line. For simplicity, the remaining JIRA REST API calls used throughout this document make use of this command line tool.

You will receive a JSON response that looks similar to:

```
{"session": {
    "name":"JSESSIONID",
    "value":"3BCEFC7E6EC901DADA2A90CA043BEFB6"},
 "loginInfo":{
     "loginCount":9,
     "previousLoginTime":"2010-07-09T11:25:46.337+1000"
 }}
```

For our purposes, what we care about is the session name and value, which tells us the name of the cookie to send to JIRA and the value to use.

Logging Out

Logging out is pretty simple, just do an HTTP DELETE on /rest/auth/latest/session.

```
curl -b cookie_jar -c cookie_jar -X DELETE http://localhost:8090/jira/rest/auth/latest/session
```

`cookie_jar` is the name of a file that cURL uses to store the cookies its receives from URLs. Some versions of cURL may require explicitly specifying the cookie jar as an input file using the `-b` option, as shown above.

Cookies Expire

One downside of cookies (as opposed to BASIC Authorisation) is that they expire. You have probably noticed this when accessing JIRA through a web browser. Every once in a while, especially if you have not used JIRA in a while, you need to log in again because your cookie has expired. The same phenomenon occurs when using REST. If you are writing a script or code which involves REST API calls and:

- Only runs for a few minutes, then you should not have to worry about cookies expiring.
- Runs for a longer period of time due to more complex integration activities, then expiring cookies may cause problems.

If you use REST with a cookie that has expired, you will receive a 401 error response from JIRA. The response body will contain a message telling you that your cookie is invalid. At that point, you will need to re-authenticate to the session resource on the "auth" API.

> **This may change:**
>
> If a cookie has expired, you will receive an error message in text/html, which is not helpful when you expect an `application/json` Internet media type. We would like to make these responses more obvious in future.

CAPTCHAs

CAPTCHA upon login was a security feature incorporated into JIRA 4.1. This feature is 'triggered' after several consecutive failed log in attempts, after which the user is required to interpret a distorted picture of a word and type that word into a text field with each subsequent log in attempt.

Be aware that you cannot use JIRA's REST API to authenticate with a JIRA site, once JIRA's CAPTCHA upon login feature has been triggered.

When you get an error response from JIRA, you can check for the presence of an **X-Seraph-LoginReason** header in the response, which will contain more information. A value of **AUTHENTICATION_DENIED** means the application rejected the login without even checking the password, which most commonly indicates that JIRA's CAPTCHA feature has been triggered.

> **This may change:**
>
> We would like to improve REST API responses from JIRA where the CAPTCHA upon login feature has been triggered. Examining headers is fairly common in HTTP, but we believe it would be better to generate some useful JSON too.

JIRA REST API Responses

This section demonstrates how to use some of the key features of this Alpha release of the JIRA REST API.

We are using cURL in this section to make JIRA REST API calls with user authentication (above) and each call is followed by a typical JSON response.

Simple Issue Response

In the following example, BASIC Authorisation is used to retrieve an issue's content. The following call:

```
curl -u admin:admin http://localhost:8090/jira/rest/api/2.0.alpha1/issue/MKY-1
```

Would generate this standard response:


```
{ "expand" : "html",
  "fields" : { "assignee" : { "name" : "assignee",
          "type" : "com.opensymphony.user.User",
          "value" : { "displayName" : "admin",
              "name" : "admin",
              "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/user?username=admin"
            }
        },
      "attachment" : { "name" : "attachment",
          "type" : "attachment",
          "value" : [  ]
        },
      "comment" : { "name" : "comment",
          "type" : "com.atlassian.jira.issue.fields.CommentSystemField",
          "value" : [  ]
        },
      "components" : { "name" : "components",
          "type" : "com.atlassian.jira.bc.project.component.ProjectComponent",
          "value" : [  ]
        },
      "created" : { "name" : "created",
          "type" : "java.util.Date",
```

```
        "value" : "2010-09-20T15:35:41.173+1000"
      },
    "description" : { "name" : "description",
        "type" : "java.lang.String"
      },
    "environment" : { "name" : "environment",
        "type" : "java.lang.String"
      },
    "fixVersions" : { "name" : "fixVersions",
        "type" : "com.atlassian.jira.project.version.Version",
        "value" : [  ]
      },
    "issuetype" : { "name" : "issuetype",
        "type" : "com.atlassian.jira.issue.issuetype.IssueType",
        "value" : { "name" : "Bug",
            "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/issueType/1",
            "subtask" : false
          }
      },
    "labels" : { "name" : "labels",
        "type" : "com.atlassian.jira.issue.label.Label",
        "value" : [  ]
      },
    "links" : { "name" : "links",
        "type" : "issuelinks",
        "value" : [  ]
      },
    "priority" : { "name" : "priority",
        "type" : "com.atlassian.jira.issue.priority.Priority",
        "value" : { "name" : "Major",
            "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/priority/3"
          }
      },
    "project" : { "name" : "project",
        "type" : "com.atlassian.jira.project.Project",
        "value" : { "key" : "MKY",
            "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/project/MKY"
          }
      },
    "reporter" : { "name" : "reporter",
        "type" : "com.opensymphony.user.User",
        "value" : { "displayName" : "admin",
            "name" : "admin",
            "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/user?username=admin"
          }
      },
    "security" : { "name" : "security",
        "type" : "com.atlassian.jira.issue.security.IssueSecurityLevel"
      },
    "status" : { "name" : "status",
        "type" : "com.atlassian.jira.issue.status.Status",
        "value" : { "name" : "Open",
            "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/status/1"
          }
      },
    "sub-tasks" : { "name" : "sub-tasks",
        "type" : "issuelinks",
        "value" : [  ]
      },
    "summary" : { "name" : "summary",
        "type" : "java.lang.String",
        "value" : "Sed ultricies, leo at adipiscing fringilla."
      },
    "timetracking" : { "name" : "timetracking",
        "type" : "com.atlassian.jira.issue.fields.TimeTrackingSystemField"
      },
    "updated" : { "name" : "updated",
        "type" : "java.util.Date",
        "value" : "2010-09-20T15:35:41.173+1000"
      },
    "versions" : { "name" : "versions",
        "type" : "com.atlassian.jira.project.version.Version",
        "value" : [  ]
      },
    "votes" : { "name" : "votes",
```

```
        "type" : "com.atlassian.jira.issue.fields.VotesSystemField",
        "value" : { "hasVoted" : false,
            "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/issue/MKY-1/votes",
            "votes" : 0
          }
      },
    "watcher" : { "name" : "watcher",
        "type" : "watcher",
        "value" : { "isWatching" : false,
            "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/issue/MKY-1/watchers",
            "watchCount" : 0
          }
      },
    "worklog" : { "name" : "worklog",
        "type" : "worklog",
        "value" : [  ]
      }
  },
"html" : {  },
"key" : "MKY-1",
```

```
  "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/issue/MKY-1",
  "transitions" : "http://localhost:8090/jira/rest/api/2.0.alpha1/issue/MKY-1/transitions"
}
```

Expandable Properties

As you can see from the example above, the very first entry is something called **expand**. In the JIRA REST API, some of the response information is 'hidden' within **expandable properties**. In order to see this information, you must explicitly expand it by including the `expand` query parameter in your REST API call.

> To find out what properties are expandable, look at the `expand` field in the JSON response to see what other information is available.

Expandable properties allow the generation of optimal REST API responses, which avoid the following problems associated with offering 'too much' or 'too little' information:

- If responses provide *too little* information, you may require many more HTTP GET REST API calls to collect all the information you require. Overloading a JIRA site with this volume of REST API calls could generate network latency, which in turn could severely impact JIRA's performance.
- If responses provide *too much* information, then the network bandwidth, memory usage and processing load of a JIRA server could be severely impacted if the server receives multiple simultaneous REST API calls. For instance, if all we want to know about an issue from a REST API call is its key, then there is no need to retrieve additional information about the issue in the response, such as a potentially extensive list of comments.

Expandable properties give you some control over the data you get back.

In the following example, an issue's content is being retrieved, along with the expanded details of its `fields` property, which excludes details about comments or attachments. The following call:

```
curl -u admin:admin http://localhost:8090/jira/rest/api/2.0.alpha1/issue/MKY-1?expand=html
```

Would generate a response like this (some part of the response have been removed for brevity and clarity):

```
{
  expand: "html",
  self: "...",
  key: "MKY-1",
  fields: { ... },
  transitions: "...",
  html: {
    environment: "",
    description: "<p>Sed ac magna ante, et euismod.</p<",
    comment: [
      "<p>Ut cursus lobortis nunc, venenatis vulputate.</p>"
    ],
    worklog: [ ]
}
```

> **This may change:**
>
> Finding the right balance in the amount of information that should be retrieved via expandable properties (and the exact representation of each field) is a tricky process and based on feedback gathered from the JIRA developer community, we may amend this in future.
>
> Should we include all of the icons in every response? For the Project field, should we include information such as the Project Lead or should you retrieve this information from the JIRA REST API "project" resource?
>
> What we've chosen for this Alpha is a "reduced" variant of the field that contains the kind of information that 90% of clients (we hope) will want. The other 10% will need to follow the Self link section (below) to see the extra data.
>
> We also want to remove the distinction between system and custom fields as much as possible. For example, your client may only need to deal with a "user" and does not care if the user is from a UserCustomField or the Assignee system field.

Self Links

Let's take a closer look at the "reporter" field from the example above:

```
{
  "name" : "reporter",
  "type" : "com.opensymphony.user.User",
  "value" : { "displayName" : "admin",
              "name" : "admin",
              "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/user?username=admin"
  }
}
```

Lots of fields like this one will have a "self" link, which takes you to the canonical location for that resource. Sometimes there will be more information there. For instance, right now we don't know the email address of the user with the "name" of "admin". Hence, if we follow that link:

```
curl -u admin:admin 'http://localhost:8090/jira/rest/api/2.0.alpha1/user?username=admin'
```

Would generate a response like this:

```
{
   "self" : "http://localhost:8090/jira/rest/api/2.0.alpha1/user?username=admin",
   "name" : "admin",
   "emailAddress" : "admin@example.com",
   "avatarUrl" : "http://localhost:8090/jira/secure/useravatar?size=large&ownerId=admin",
   "displayName" : "Administrator",
   "groups" : [
      "jira-administrators",
      "jira-developers",
      "jira-users",
      "jira-homosapien-devs",
      "jira-homosapien-users"
   ]
}
```

This gives us the email address of the user "admin", along with their avatar URL and a list of the groups to which this user belongs.

Top-Level Issue Information

Here is the information that will be in the top level of the issue:

Top Level Keys	Description
expand	The list of fields that can be expanded in a REST response.
self	Most fields in JIRA's REST API have a "self" attribute. This will be the canonical URI for the resource.
key	The issue key itself.
fields	All of the custom and system fields of the issue.
transitions	The transitions that are currently valid for this issue.
html	if requested, an HTML representation of wiki rendereable text fields (i.e. comments, worklogs, etc.)

The exact details contained within the **fields** of issue will depend on how your JIRA site is configured. For instance, if you do not have attachments enabled on your JIRA instance, then there will not be an attachment attribute in the response. If the issue you are retrieving information about is not a SubTask, then you will not have a link to a parent issue.

Fields

All fields in JIRA have a common representation under the **fields** key.

```
field_id: {
  name: field_name
  type: field_type
  value: field_value
}
```

For system fields the **field_id** and **field_name** will be the same. For custom field the **field_id** will be a unique descriptor in the format of

customfield_10040 while the **field_name** will be the text description provided when it is created (e.g. "Participants").

The **field_type** is intended to provide some indication about the format and content of **field_value**. It is intended to be an opaque identifier.

> The exact values used for **field_type** may change in the future as we refactor and improve the internal type system being used by JQL and REST.

The format of **field_value** will vary depending on the field in question. For **description**, for instance, it will be a simple string. For **comment** it will be an array of comment objects.

Rendering

Within the **fields** section all text will be presented in its raw format. If you have configured a field to use the wiki renderer then you may also want to get the HTML rendered version of the field. This can be accessed via the **html** expandable entity when you provide the **expand=html** query parameter.

Modifying JIRA Data

This Alpha release of JIRA's REST API is primarily focused around viewing an issue. However, it provides a few things which you can use to modify the state of JIRA. Since REST is built on plain HTTP, this means that anything which uses **GET** is "safe" - that is, you are just viewing a resource. Other HTTP methods – **POST**, **PUT**, and **DELETE** – are for modifying JIRA data. If you look through the JIRA REST API Reference documentation, you will see a few resources that understand these HTTP methods for modifying JIRA data. We have already seen an example of this in action when we logged in and logged out (above), and used a **POST** to create a new session and **DELETE** to remove it.

Comprehensive Examples

Here are some comprehensive examples that demonstrate how to use and implement the JIRA REST API.

> **Please Note:**
>
> These examples were developed for explanatory purposes only. They are not production-quality and should not be used in a production environment.

Example #1: Graphing Image Links

Let's write a small python script that will use our REST interface to graph the relationships between issues in our JIRA site.

We'll use the small helper library (restkit) to simplify the REST requests. This library is not strictly necessary — after all, REST is just HTTP. However, restkit can be used for convenience. We also rely on Google Charts to do the actual graphing for us too.

Using the JIRA REST API is fairly simple:

- you make an HTTP call,
- get some data back,
- then do something with that data.

In the following example, 95% of the code is doing something other than interacting with the JIRA REST API. So before we see the full example, let's highlight the actual REST usage out of context to show how simple it usually is. This example uses Python:

```
resource = Resource(url + '/rest/api/latest/issue/%s' % key, pool_instance=pool, filters=[auth])
response = resource.get(headers = {'Content-Type' : 'application/json'})
    if response.status_int == 200:
        # Not all resources will return 200 on success. There are other success status codes. Like
204. We've read
        # the documentation though and know what to expect here.
        issue = json.loads(response.body_string())
        return issue
```

This performs a GET on the issue, checks for a successful response, and the parses the JSON response into a Python dictionary. The **filters=[auth]** line is how we told restkit to perform BASIC Authorisation. Later on, we'll reach into this Python dictionary to grab the data we want for our work:

```
fields = issue['fields']
if fields.has_key('sub-tasks') and fields['sub-tasks'].has_key('value'):
    for other_issue in issue['fields']['sub-tasks']['value']:
        # do work with a subtask
```

You can view the full source by downloading the attachment: draw-chart.py

You can see the script's command line options using the standard command:

```
./draw-chart.py --help
```

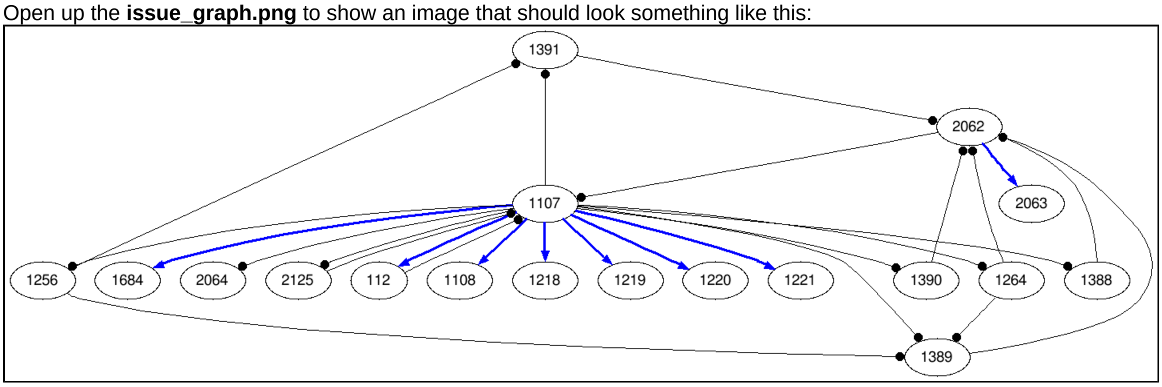
You can test this against your JIRA site with:

```
./draw-chart.py --user=username --password=password --jira=<url-of-your-jira-site>
```

The output should look similar to:

```
Fetching JRADEV-1391
Fetching JRADEV-2062
Fetching JRADEV-2063
Fetching JRADEV-1107
Fetching JRADEV-112
Fetching JRADEV-1108
Fetching JRADEV-1218
Fetching JRADEV-1219
Fetching JRADEV-1220
Fetching JRADEV-1221
Fetching JRADEV-1684
Fetching JRADEV-2064
Fetching JRADEV-1390
Fetching JRADEV-1389
Fetching JRADEV-1388
Fetching JRADEV-2125
Fetching JRADEV-1264
Fetching JRADEV-1256
Writing to issue_graph.png
```

Open up the **issue_graph.png** to show an image that should look something like this:

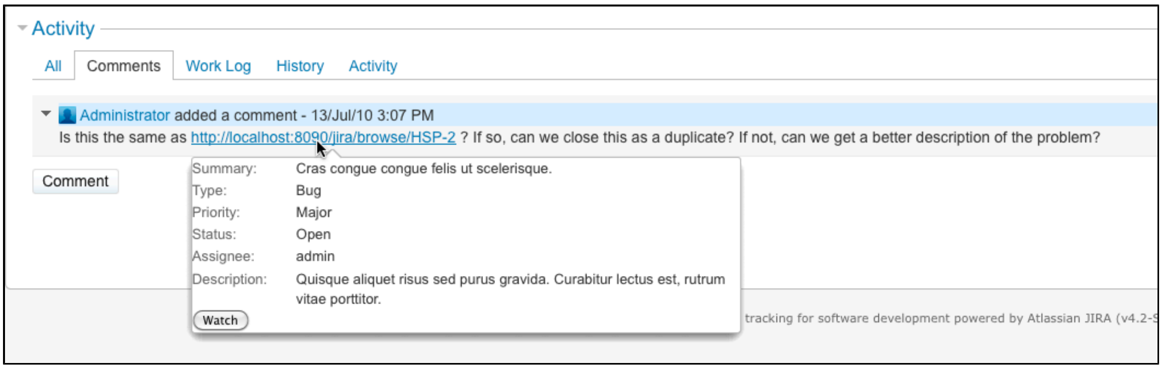


Blue lines with arrows denote SubTasks.

Example #2: Quickview Inline Dialog Plugin

This time, we'll create a JIRA plugin that uses the REST API. We want to look through all the comments on the issue and add a little tooltip that will pop up when you hover over a link to a JIRA issue.

The popup should contain a "quick view" of information about the target issue (similar to the example shown in the following image) so that we do not have to click the issue's link to see this information.



We can achieve this using a Web Resource Context. This lets our plugin put JavaScript just on the View Issue page of JIRA.

First, we define the Web Resource Context in our atlassian-plugin.xml:

```
<web-resource key="remote-link" name="Remote Issue Linking">
        <resource name="linker.js" type="download" location="linker.js"/>
        <context>jira.view.issue</context>
    </web-resource>
```

Then we have `linker.js` look in the comment body for URLs that 'look like' they might point to JIRA issues. Next, obtain the JSON representation of the issue using JIRA's REST API, do some quick formatting on it and put it into an AUI InlineDialog.

```
jQuery(document).ready(function() {
    var i=new Date().getTime()
    jQuery("#issue_actions_container").find('.action-body a').each(function() {
        if (this.href.match(/\/browse\/[A-Z]+\-\d+$/)) {
            var split = this.href.split('/browse/')
            var base = split[0]
            var key = split[1]
            var options = { cacheContent: true, onHover: true, showDelay: 400, hideDelay: 400,
closeOthers: false, width: 500 }
            var draw = function(contents, trigger, showPopup) {
                jQuery.getJSON(base + '/rest/api/latest/issue/' + key, function(data) {
                    var fields = data["fields"]
                    contents.empty()
                    contents.append(
                        "<ul class=\"item-details\">"
                        + "<li>"
                        + "<dl><dt>Summary: </dt>" + "<dd>" + fields["summary"]["value"] +
"</dd></dl>"
                        + "<dl><dt>Type: </dt>" + "<dd>" + fields["issuetype"]["value"]["name"] +
"</dd></dl>"
                        + "<dl><dt>Priority: </dt>" + "<dd>" + fields["priority"]["value"]["name"]
+ "</dd></dl>"
                        + "<dl><dt>Status: </dt>" + "<dd>" + fields["status"]["value"]["name"] +
"</dd></dl>"
                        + "<dl><dt>Assignee: </dt>" + "<dd>" + fields["assignee"]["value"]["name"]
+ "</dd></dl>"
                        + "<dl><dt>Description: </dt>" + "<dd>" + fields["description"]["value"] +
"</dd></dl>"
                        + "</li></ul>")
                    contents.append("<form id=\"add-watch\" name=\"watch\" action=\"\">")
                    jQuery("<input type=\"button\" name=\"button\"
value=\"Watch\"/>").click(function() {
                        // We don't actually know our own username...and we need it to add a
Watcher. So we get it from the
                        // "current user" resource
                        jQuery.getJSON(base + '/rest/auth/latest/session', function(data) {
                            jQuery.ajax({ type: "POST", url: base + "/rest/api/latest/issue/" +
key + "/watchers", data: data['name'], dataType: "json", contentType: "application/json" })
                        })
                    }).appendTo(contents)
                    contents.append("</form>")
                    showPopup()
                })
            }
            AJS.InlineDialog(jQuery(this), "issue-linking-" + (i++), draw, options)
        }
    })
})
```

You can download the full demo plugin here: demo-plugin-src.zip

Further reading

- The Atlassian REST API space is the central point for all Atlassian REST API documentation. providing overviews and links to product-specific APIs.
- The Atlassian REST API Design Guidelines is a general, cross-product explanation of Atlassian's overall approach to REST. You can read that later to learn more about what is guiding our overall approach in JIRA.
- JIRA REST Java Client Library is a sample implementation of JIRA REST client, which should help all Java and JVM-based languages developers take advantage of JIRA REST API easily and quickly.

JIRA REST clients

- JIRA REST Java Client Library is a sample open source implementation (Apache license) of JIRA REST client developed by Atlassian. This implementation evolves together with JIRA REST API itself, helps driving, validating and testing it. We encourage everyone willing to use JIRA REST API capabilities from a Java or any JVM-based language program to try it out and give us feedback.

JIRA Developer FAQ

This is a constantly updated FAQ listing questions and answers asked by people developing JIRA plugins and working with the JIRA code base in general.

> ⚠ If you have a question, please ask it on our Developer Forums and certain threads will be merged back into the FAQ.

Questions

Page: How do I get access to the current request?
Page: Creating and Editing an Issue
Page: How do I extract CVS commits for an issue
Page: How do I get access to manager X?
Page: How do I find issues with field X?
Page: How do I determine which Issues a user is allowed to see?
Page: How do I find all Versions in a Project?
Page: I have a GenericValue issue. How do I convert this to an Issue object?
Page: Can I have a different Excel template for each report?
Page: How to add searching to a Custom Field?
Page: How to set a custom field value on an issue?
Page: How do I get a handle to the model (issues) then iterate?
Page: How do I get more help with SOAP?
Page: How do I know what else lurks in the Velocity context?
Page: How do I get a handle to the 'components' of a JIRA project?
Page: Why am I getting 'Exception looking up public key' exception while building a plugin?
Page: How do I remove an issue operation?
Page: How do I write a servlet for JIRA?
Page: Is it possible to have a report plugin only appear for specific projects?
Page: How to search in a plugin
Page: How to Set Default Comment Security Level
Page: How do I create a report with custom issue set using IssueNavigator
Page: How do I get a handle to object X (specifically IssueNavigator)?

How to make a custom field "importable" for project imports

Summary

As of JIRA 3.13, you can now import single projects from an XML backup. The import includes the projects issues and all related issue data.

In order to import custom field data the CustomFieldType class that defines the custom field must implement a new interface, ProjectImportableCustomField. All the existing JIRA system custom fields and the custom fields included in supported JIRA plugins have been modified to implement this interface.

As of July 18th, 2008, the following plugins have been modified to support the new interface:

FishEye Plugin for JIRA	✗
JIRA Charting Plugin	✓
JIRA Labels Plugin	✓
JIRA Linker Plugin	✓
JIRA Toolkit	✓
JIRA Perforce Plugin	✓

> You only need to be concerned about this document if you are using a custom field that may have been developed before 3.13, or without taking into account the ProjectImportableCustomField interface AND you would like this custom fields data to be imported when performing a project import.

Making a field project importable

ProjectImportableCustomField

The ProjectImportableCustomField interface is an optional interface that can be implemented when creating a JIRA CustomFieldType. If this interface is not implemented then any custom fields of this type will be ignored when performing a project import. This will in no way stop the import from proceeding but it will stop the custom field values from being included in the projects issue data.

The interface looks like this:

```
public interface ProjectImportableCustomField
{
    ProjectCustomFieldImporter getProjectImporter();
}
```

ProjectCustomFieldImporter

As you can see implementing the interface commits you to creating an instance of a ProjectCustomFieldImporter. The ProjectCustomFieldImporter is the class that does the actual work for a custom field when being imported.

A ProjectCustomFieldImporter has two jobs:

1. Validate whether or not the custom field values are relevant for the running instance of JIRA.
2. Transform the custom field values (if required) so that the values will be valid in the running instance of JIRA.

The ProjectCustomFieldImporter has two methods, canMapImportValue and getMappedImportValue:

```
MessageSet canMapImportValue(ProjectImportMapper projectImportMapper, ExternalCustomFieldValue
customFieldValue, FieldConfig fieldConfig, final I18nHelper i18n);

MappedCustomFieldValue getMappedImportValue(ProjectImportMapper projectImportMapper,
ExternalCustomFieldValue customFieldValue, FieldConfig fieldConfig);
```

canMapImportValue

The project import will run through all the custom field values that are relevant to a custom field and, if the custom field type is project importable, will first invoke the canMapImportValue. At this time the custom field needs to decide if there is a problem with the provided custom field value.

The ProjectCustomFieldImporter implementation can communicate two levels of messages, warnings and errors. An error will make it so the project import can not continue. The error message will be shown on the pre-import summary screen associated with the custom field. Error messages should be descriptive to the extent that a user can, hopefully, correct the error so that the import will eventually proceed. A warning will NOT cause the project import to stop. A warning message is used to alert the user to some aspect of the data that you may want them to know BEFORE they decide if they want to perform the import or not. The warning message will be shown on the pre-import screen.

Both warning and error messages are added to a MessageSet. One characteristic of the MessageSet is that if you add 2 or more of the exact same textual errors, they will only be reported as a single errors. For example:

Your select custom field in your running instance of JIRA does not have an option configured for the value "test option 1".

In your backup data you have 10 references to the custom field value "test option 1"

canMapImportValue will be called 10 times with this value. Each time you add an error message of "Field 'My Select Field' can not import value 'test option 1', the field does not have this option."

In the pre-import UI, this message will be shown one time under a sub-heading of the custom fields name.

> If you add an error message to the message set when the canMapImportValue method is called then the getMappedImportValue will never be called.

If you are a custom field that is storing system values (e.g. a group custom field). You can also get the system to perform validation for you by alerting the system that your "system" value is required. This is done through the mappers that are passed in via the ProjectImportMapper.

Each individual mapper has a flagValueAsRequired method. Calling this records the fact that the value is a system value that **must** be present for the import to proceed. If the value is not present then the project import will report an error on the pre-import summary screen under the sub-heading of the system field (e.g. group).

For example if you were a group custom field:

```
projectImportMapper.getGroupMapper().flagValueAsRequired(groupname);
```

getMappedImportValue

This method is called once the actual import is being performed.

The main objective of this method is to "transform" the existing custom field value in any way that the ProjectCustomFieldImporter implementation deems necessary.

If, for some reason, you do not want the value to be stored then you can return a MappedCustomFieldValue with a null value.

Otherwise you should fill the MappedCustomFieldValue with the value you want stored in the running JIRA instance.

It should almost always be the case that if this method is called (i.e. canMapImportValue did not generate an error) that a MappedCustomFieldValue can be created.

ProjectImportMapper

Many custom fields rely on system information. The ProjectImportMapper gives you access to system values (statues, priorities, project roles, etc.) that the Importer has already mapped and validated. This allows you to find the ID of a system value in the running JIRA instance corresponding to the "old" ID (usually your custom field value).

Custom fields are therefore provided with a ProjectImportMapper when the canMapImportValue and getMappedImportValue methods are called. This mapper contains individual mappers for different system fields. The mapper is filled with information about the values from the backup XML data and mapped values in the running JIRA instance. These mapped values can be useful in deciding if a custom field type can map a value and what that mapping would be.

Sometimes you may want to not perform a validation check yourself, instead you want to communicate to the Project Import that the system value is "in use" or "required" and then the Project Import can validate if that system value is correct or not.

One example of where you want to let the Project Importer do validation is Users and the UserCFType.

The project importer will try to create any users that are required but do not exist in the running JIRA instance. Therefore, we want to let the system know about any users that a custom field may reference.

The UserCustomFieldImporter looks like this:

```
public MessageSet canMapImportValue(final ProjectImportMapper projectImportMapper, final
ExternalCustomFieldValue customFieldValue, final FieldConfig fieldConfig, final I18nHelper i18n)
{
    String username = customFieldValue.getValue();
    // ignore empty username including null and empty String.
    if (username != null && username.length() > 0)
    {
        // Flag the username as required
        projectImportMapper.getUserMapper().flagValueAsRequired(username);
        // We don't check the Mapper directly if the username can be mapped, because Users can
sometimes be automatically imported
        // during the Project Import.
    }
    return null;
}

public MappedCustomFieldValue getMappedImportValue(final ProjectImportMapper projectImportMapper,
final ExternalCustomFieldValue customFieldValue, final FieldConfig fieldConfig)
{
    // We don't actually map Users, we just use the same username.
    return new MappedCustomFieldValue(customFieldValue.getValue());
}
```

Notice the call to projectImportMapper.getUserMapper().flagValueAsRequired(username). If you want to alert a mapper that a field value is required for the import to continue you can call this method on the provided mapper.

Most of the time, you are not storing system field values so, you should just add an error message yourself. Users are a very special case since the importer will create them if they are missing. Do not raise an error if you are a user custom field, instead flag the value as required in the UserMapper and the import will handle the creation/validation of the user for you.

One example of just using a mapper and doing the validation yourself is Project information and the ProjectCFType.

For example:

The Project custom field stores the id of a project within JIRA. When importing a project from a backup there is no guarantee that the custom fields value will make any sense in the running JIRA instance.

In the project custom fields ProjectCustomFieldImporter implementation of canMapImportValue we lookup the projectMapper and see if there is a mapped value for the custom field value (old project id):

```
projectImportMapper.getProjectMapper()
final String mappedId = projectMapper.getMappedId(valueAsIntString);
```

The ProjectImport has already done the trouble to validate and map the values found in the system mappers so the custom fields can use this information to decide if their values are valid. In the case of the project custom field if there is not a mapped ID we choose to add a warning to the message set to let the users know that the unmapped values will be dropped on import.

> Not all ProjectCustomFieldImporter's will need to use the ProjectImportMapper. It may be the case that the custom field has no need of system information.

NoTransformationCustomFieldImporter

The majority of CustomFieldType's store values that have no dependency on the running JIRA instances configuration (e.g. text custom fields, date custom fields, number custom fields, etc.).

In these cases we just want to pass the existing value strait through the importer.

We have created an implementation of ProjectCustomFieldImporter that does exactly this, its called NoTransformationCustomFieldImporter. If you custom field simply wants its existing value imported into the new system then you should use this implementation.

Example: Select custom field ProjectCustomFieldImporter

The SelectCFType in JIRA stores a string which relates to a configured custom field option in JIRA. A select custom field that references a value that does not have a corresponding option in the custom field configurations will not be shown on the JIRA view issue screen.

THEREFORE, when importing select custom field values you DO NOT want to import the value if there is not a corresponding option for that select custom field.

The code for the select custom field ProjectCustomFieldImporter looks like this:

```
public class SelectCustomFieldImporter implements ProjectCustomFieldImporter
{
    private final OptionsManager optionsManager;

    public SelectCustomFieldImporter(OptionsManager optionsManager)
    {
        this.optionsManager = optionsManager;
    }

    public MessageSet canMapImportValue(final ProjectImportMapper projectImportMapper, final
ExternalCustomFieldValue customFieldValue, final FieldConfig fieldConfig, final I18nHelper i18n)
    {
        final String value = customFieldValue.getValue();
        // Get this custom field's "valid" options and see if the value is one of them
        final Options options = optionsManager.getOptions(fieldConfig);
        if (options.getOptionForValue(value, null) == null)
        {
            // If an option does not exist for the value we are looking at then log an error and
stop the import
            MessageSet messageSet = new MessageSetImpl();

messageSet.addErrorMessage(i18n.getText("admin.errors.project.import.custom.field.option.does.not.exi
fieldConfig.getCustomField().getName(), value));
            return messageSet;
        }
        return null;
    }

    public MappedCustomFieldValue getMappedImportValue(final ProjectImportMapper
projectImportMapper, final ExternalCustomFieldValue customFieldValue, final FieldConfig
fieldConfig)
    {
        // Since this method will never be called without a successful call to canMap we can
safely just pass the
        // value back out.
        return new MappedCustomFieldValue(customFieldValue.getValue());
    }
}
```

Take careful notice of how in the canMapImportValue method we use the provided FieldConfig (this provides the "context" that the custom field is being used in) to find the configured Options for this custom field.

We next try to find the option that corresponds to the string custom field value we are provided. If we do not find this option in the running JIRA instance we will add an internationalized error message (please note the I18nHelper provided is the I18nHelper configured for your custom field, so if you want to provide an I18n'ed message you can do so via normal methods in your plugin descriptor).

Notice too that once getMappedImportValue is called all we have to do is pass back the existing value since we can be sure that the canMapImportValue has already succeeded.

Now we need to wire our ProjectCustomFieldImporter with our CustomFieldType:

```
public class SelectCFType extends TextCFType implements MultipleSettableCustomFieldType,
MultipleCustomFieldType,
                                                        SortableCustomField, GroupSelectorField,
ProjectImportableCustomField
{

    private final SelectConverter selectConverter;
    private final OptionsManager optionsManager;
    private final ProjectCustomFieldImporter projectCustomFieldImporter;

    private static final Logger log = Logger.getLogger(SelectCFType.class);

    public SelectCFType(CustomFieldValuePersister customFieldValuePersister, StringConverter
stringConverter,
                        SelectConverter selectConverter, OptionsManager optionsManager,
GenericConfigManager genericConfigManager)
    {
        super(customFieldValuePersister, stringConverter, genericConfigManager);
        this.selectConverter = selectConverter;
        this.optionsManager = optionsManager;
        this.projectCustomFieldImporter = new SelectCustomFieldImporter(this.optionsManager);
    }

    public ProjectCustomFieldImporter getProjectImporter()
    {
        return this.projectCustomFieldImporter;
    }
```

Existing ProjectCustomFieldImporter Implementations

These implementations have been created and are used by various JIRA system custom fields:

- NoTransformationCustomFieldImporter
- SelectCustomFieldImporter
- CascadingSelectCustomFieldImporter
- GroupCustomFieldImporter
- ProjectPickerCustomFieldImporter
- UserCustomFieldImporter
- VersionCustomFieldImporter

Conclusion

If you want your custom field to participate in project imports you will need to modify your existing custom field code, hopefully this document has provided enough information to help you do this.

> If your custom field type is extending a JIRA system custom field type you may already inherit an implementation of ProjectImportableCustomField.
>
> Please make sure that this is the right implementation for your custom field type.

Can I have a different Excel template for each report?

Excel templates of reports are controlled by the file `\secure\views\browser\report-excel.jsp`. While you can't easily have different `report-excel.jsp` for each report, you can easily edit the `report-excel.jsp` file to behave differently for each report (or if you want, use a different include for each report).

The report-excel.jsp has full access to methods available in `com.atlassian.jira.web.action.browser.ConfigureReport`. This means that you can figure out what report it is from the `getReportKey()` and `getReport()` methods, and make the page behave accordingly.

Developing against JIRA with Secure Administrator Sessions

Secure administrator sessions (also known as 'websudo') is a security feature introduced in JIRA 4.3. This provides an additional layer of authentication for administration functions. If you are developing a plugin for JIRA 4.3 or later, you will need to take note of the information below.

Plugin Development

WebWork actions that require administration access can be protected in JIRA with the WebSudoRequired annotation. This annotation must be on the class not the package nor a method in the class. (Note: WebSudoNotRequired annotation is not used in JIRA.)

Other plugin types, such as REST services or servlets, can be protected via websudo by following the instructions at: Adding WebSudo Support to your Plugin.

How do I create a report with custom issue set using IssueNavigator

This code could be cleaned up, but it shows how to generate an IssueNavigator table from a List of issues. This will be very helpful to anyone trying to generate a list of issues who wants to reuse the excellent IssueNavigator table we all know and love.

```
/**
     * Using the list of issues we've compiled generate a report using the IssueNavigator.
     * @param action
     * @param params
     * @param issues
     * @return
     * @throws Exception
     */
    protected String generateIssueTableslForReport(ProjectActionSupport action, Map params, List
issues) throws Exception {
        HttpServletRequest request = ActionContext.getRequest();
        IssueTableLayoutBean layoutBean =
issueNavigator.getTableLayoutFactory().getStandardLayout(issueNavigator.getSearchRequest(),
issueNavigator.getRemoteUser());
        IssueTableWebComponent itwc = new IssueTableWebComponent();
        StringBuffer sb = new StringBuffer();
        List tempList = new LinkedList();

        // break up what gets returned into sets of issues revolving around an issue
        // of type feature
        for (int i = 0; i < issues.size(); i++) {
            Issue issue = (Issue) issues.get(i);
            if (issue.getIssueType().get("name").equals(FLUID_ISSUE_TYPE_FEATURE)) {
                if (tempList.size() > 0) {
                    sb.append("<br/>");
                    sb.append(itwc.getHtml(layoutBean, tempList, null));
                    sb.append("<br/>");
                    tempList.clear();
                }
            }
            // add this feature to the list
            tempList.add(issue);
        }
        // write out the rest of the issues
        sb.append("<br/>");
        sb.append(itwc.getHtml(layoutBean, tempList, null));
        sb.append("<br/>");
        return sb.toString();
    }
```

How do I determine which Issues a user is allowed to see?

How do I determine which Issues a user is allowed to see?

Given a list of issues, use

```
IssueUtils.filterIssues(issueGVs, new PermissionsParameter(user))
```

to filter the list of issues down to only those that the user has permission to view.

How do I develop for Application Links

Resources for developers who want to develop for the Application Links plugin should refer to the Application Links Development Hub.

How do I extract CVS commits for an issue

This code snippet was extracted from the DefaultActionManager class in JIRA's source code:

```
/**
* Retrieves all of the commits for this issue from ALL of the repositories associated with the
issue's project
*
* @param issue
* @param remoteUser
*/

    public List getCommits(GenericValue issue, User remoteUser) throws GenericEntityException,
RepositoryException
    {
        List commits = new ArrayList();

        if (issue == null)
            throw new IllegalArgumentException("Issue cannot be null.");
        if (!"Issue".equals(issue.getEntityName()))
            throw new IllegalArgumentException("Entity must be of type Issue");

        if (!hasPermission(issue, remoteUser))
        {
            // If the user does not have the reuqited permission, do not return any information.
            return Collections.EMPTY_LIST;
        }

        Collection repositories = getRepositories(issue);
        for (Iterator iterator = repositories.iterator(); iterator.hasNext();)
        {
            Repository repository = (Repository) iterator.next();
            try
            {
                List coms = repository.getCommitsForIssue(issue.getString("key"));
                for (int i = 0; i < coms.size(); i++)
                {
                    commits.add(new Commit((VCSCommit) coms.get(i), remoteUser,
repository.getName(), repository.getRepositoryBrowser()));
                }
            }
            catch (OutOfMemoryError e)
            {
                // Add an issue action that represents OutOFMemeory error
                commits.add(new OutOfMemoryCommitIssueAction(remoteUser, new
Timestamp(System.currentTimeMillis()), repository.getName()));
            }
        }

        // Sort by date
        Collections.sort(commits);
        return commits;
    }
```

How do I find all Versions in a Project?

Given an issue, you can retrieve all versions of its Project.

```
GenericValue project = projectManager.getProject(myIssueGV);
List versions = versionManager.getVersions(project);
Collections.sort(versions);
```

How do I find issues with field X?

How do I find issues with field X?

You can find more information about searching in JIRA at How to search in a plugin and also in here.

How do I get access to manager X?

How do I get access to manager X?

You can get access to all Managers in JIRA through the Pico container's `ComponentManager`.

You can inject the component by registering it in your constructor as per PicoContainer and JIRA or you can statically load it from the `ComponentManager` itself. For example:

```
IssueLinkTypeManager issueLinkTypeManager =
 (IssueLinkTypeManager) ComponentManager.getComponentInstanceOfType(IssueLinkTypeManager.class);
```

How do I get access to the current request?

How do I get access to the current request?

Within your plugin code, you can perform the following static call to get access to the `HttpServletRequest` object. This then in turn gives you access to the session etc.

```
HttpServletRequest request = ActionContext.getRequest();
```

Please note!
The request object may be null in some contexts, so always do a null-test before using the returned `request`.

Be aware that your dependency in **pom.xml** may need amending, like so:

```
<dependency>
      <groupId>javax.servlet</groupId>
      <artifactId>servlet-api</artifactId>
      <version>2.4</version>
      <type>jar</type>
      <scope>provided</scope>
</dependency>
```

How do I get a handle to object X (specifically IssueNavigator)?

How do I get a handle to object X (specifically IssueNavigator)?

For JIRA plugins in many cases you can simply pass an object to your plugin's constructor. However some objects are not by default available. In these cases you have to add the <component> to your atlassian-plugin.xml file like so:

```
<component key="issueNavigator" name="Issue Navigator"
class="com.atlassian.jira.web.action.issue.IssueNavigator">
<interface>com.atlassian.jira.web.action.issue.IssueNavigator</interface>
    </component>
```

There are many examples in the atlassian-plugin.xml files within the sample plugins found in the JIRA development kit.

How do I get a handle to the 'components' of a JIRA project?

```
/**
     * get all the components for this project
     */
    public Collection getAllComponents() {
Long currentProjectId = (Long) ActionContext.getSession().get(SessionKeys.SELECTED_PROJECT);
GenericValue currentProject = (GenericValue) projectManager.getProject(currentProjectId);
        Collection components = new ArrayList(projectManager.getComponents(currentProject));
        return components;
    }
```

How do I get a handle to the model (issues) then iterate?

All of the objects defined externally to these methods are available to a JIRA plugin via dependency injection.

```
/**
     * Retrieve a list of all the issues in the current project. Note that several of these
objects are passed via
     * dependency injection as constructor parameters.
     *
     * @return list of Issue objects
     */
    public List<Issue> getAllIssuesInCurrentProject()
    {
        final  JqlQueryBuilder builder = JqlQueryBuilder.newBuilder();
        builder.where().project(currentProjectId);
        Query query = builder.buildQuery();
        try
        {
            final SearchResults results = searchService.search(authenticationContext.getUser(),
                    query, PagerFilter.getUnlimitedFilter());
            return results.getIssues();
        }
        catch (SearchException e)
        {
            log.error("Error running search", e);
        }

        return Collections.emptyList();
    }
```

How do I get more help with SOAP?

How do I get more help with SOAP?

The best place to get help for SOAP is at Creating a SOAP Client. This page links to the example SOAP Client, which is an excellent source to see how things work.

The SOAP client has example usages to most common functionality available in the SOAP interface. Including update issue and progressWorkflow

For example:

```
private static void testUpdateIssue(JiraSoapService jiraSoapService, String token, final String
issueKey)
        throws RemoteException
{
    // Update the issue
    RemoteFieldValue[] actionParams = new RemoteFieldValue[]{
        new RemoteFieldValue("summary", new String[] {NEW_SUMMARY}),
        new RemoteFieldValue(CUSTOM_FIELD_KEY_1, new String[] {CUSTOM_FIELD_VALUE_1}),
        new RemoteFieldValue(CUSTOM_FIELD_KEY_2, new String[] {CUSTOM_FIELD_VALUE_2})};

    jiraSoapService.updateIssue(token, issueKey, actionParams);
}
```

This updates the summary, and custom fields of an issue.

Need more help?
Try the jira-developer mailing list is your next stop. The mailing list archives a lot of helpful answers to most of the common SOAP problem, and there are helpful users and developers there to answer potential questions.

Willing to pay for help?
The Atlassian Partners site has a listing of partner specialities. You can also search for a specific keyword such as SOAP

How do I include browser-specific CSS

JIRA 4.3 and later adds classes to the HTML tag on page load. This means that you can now put all browser-specific CSS fixes in the main stylesheet near related styles. Having styles in one file increases maintainability, and reduces the number of requests — which helps pages load faster.

Prior to 4.3 you would put IE styles in the IE stylesheet and prefix with * or _ depending on the browser. In JIRA 4.3 and later you can use the following:

- .msie (all versions of IE)
- .msie-7 (just IE7)
- .msie-8 (just IE8)
- .msie-gt-7 (IE8 and IE9)
- .msie-lt-8 (IE7, IE6, IE5.5, etc)
- .mozilla (all versions of Firefox. There are no version-specific options like IE)
- .webkit (all versions of Chrome/Safari. There are no version-specific options like IE)
- .opera (note: not a supported browser)

How do I know what else lurks in the Velocity context?

Most people scratch their head to know what parameters and `Object`'s are in the Velocity context, the links below may come into help:

- Contents of the Velocity Context
- Velocity Context for Email Templates

For developers, who want to know more, the `DefaultVelocityManager` creates a self-reference back to the `VelocityContext` with these lines:

```
protected VelocityContext createVelocityContext(Map params)
    {
        if (params != null)
        {
            params.put("ctx", params);
        }
    ...
```

Therefore, doing this in the template will display the available parameters:

```
#foreach($p in $ctx.keySet().toArray())
  $p.toString() - $ctx.get($p).getClass().getName().toString()
#end
```

e.g.

```
textutils - com.opensymphony.util.TextUtils
  dateformatter - com.atlassian.jira.web.util.OutlookDate
  stringUtils - org.apache.commons.lang.StringUtils
  formatter - java.text.SimpleDateFormat
  constantsManager - com.atlassian.jira.config.DefaultConstantsManager
  buildutils - com.atlassian.jira.util.BuildUtils
  i - java.lang.Integer
  context - com.atlassian.jira.mail.TemplateContext
  jiraUserUtils - com.atlassian.jira.util.JiraUserUtils
  baseurl - java.lang.String
  security - $ctx.get($p).getClass().getName().toString()
  numdashes - java.lang.Integer
  ctx - java.util.HashMap
  jirakeyutils - com.atlassian.jira.util.JiraKeyUtils
  i18n - com.atlassian.jira.web.bean.I18nBean
  recipient - com.opensymphony.user.User
  velocityCount - java.lang.Integer
  attachments - java.util.ArrayList
  remoteUser - com.opensymphony.user.User
  userutils - com.atlassian.core.user.UserUtils
  applicationProperties - com.atlassian.jira.config.properties.ApplicationPropertiesImpl
  padSize - java.lang.Integer
  customFieldManager - com.atlassian.jira.issue.managers.DefaultCustomFieldManager
  issue - com.atlassian.jira.mail.TemplateIssue
  jirautils - com.atlassian.jira.util.JiraUtils
  params - java.util.HashMap
  projectManager - com.atlassian.jira.project.CachingProjectManager
  velocityhelper - com.atlassian.jira.util.JiraVelocityHelper
  timeSpentFieldId - java.lang.String
```

How do I remove an issue operation?

At the moment the easiest way to achieve this would be to edit the `includes/panels/issue/operations.jsp` file under the JIRA web application and remove the code that prints out the link to your operation. For example, if you want to remove the "Assign to" link, the code starts with:

```
<webwork:if test="hasIssuePermission('assign', issue) == true">

...

</webwork:if>
```

Simply remove that block and this will be removed from view. You may need to restart your application server for this change to be reflected.

How do I write a servlet for JIRA?

How do I write a servlet for JIRA?

Please follow the instructions for writing a Servlet Plugin Module.

How to set a custom field value on an issue?

Confusingly, the method `setCustomFieldValue` on the `MutableIssue` does **not** actually set the custom field value of an issue. To update a custom field value on an issue, you'd need to use the method `updateValue` on the `CustomField` object itself.

Since JIRA 3.4.x the updateValue method signature has changed to:

```
/**
* Update the issue in the data store
*
* @param fieldLayoutItem for this field within this context
* @param issue Issue this field is part of
* @param modifiedValue new value to set field to. Cannot be null.
* @param issueChangeHolder an object to record any changes made to the issue by this method.
*/
void updateValue(FieldLayoutItem fieldLayoutItem, Issue issue, ModifiedValue modifiedValue,
                 IssueChangeHolder issueChangeHolder);
```

The fieldLayoutItem is used to determine whether the wiki renderer is used or not and can be null **for non-renderable fields only**. The `issueChangeHolder` is used to store and then possibly write the change history. You can simply replace this with `new DefaultIssueChangeHolder` and it should still work out.

For example, here is some code that updates a "Timestamp" non-wiki text custom field on issue "TP-14":

```
IssueManager issueManager = ComponentManager.getInstance().getIssueManager();
CustomFieldManager cfManager = ComponentManager.getInstance().getCustomFieldManager();
MutableIssue issue = issueManager.getIssueObject("TP-14");
CustomField cf = cfManager.getCustomFieldObjectByName("Timestamp");
IssueChangeHolder changeHolder = new DefaultIssueChangeHolder();
cf.updateValue(null, issue, new ModifiedValue(issue.getCustomFieldValue(cf), ""+new
java.util.Date()),changeHolder);
System.out.println(changeHolder.getChangeItems().get(0));
```

How to Set Default Comment Security Level

Custom JavaScript is outside the scope of Atlassian support - this document is for informational purposes only

The JavaScript below no longer functions correctly for JIRA 4.2+ Please see the comments below for a velocity template workaround and follow JRA-23365

While there is no nice way of setting the default comment security level through the admin section, a bit of creative javascripting can come to the rescue. It's not the best solution but it works.

First, you will need to examine the HTML code of the issue page, and find the user visibility select list. For example:

```
<select name="commentLevel" id="commentLevel">
...
    <option value="role:10002">Administrators</option>
...
    <option value="group:jira-administrators" >jira-administrators</option>
```

Take note of the value for the option you want to set. Then add this as the **Announcement Banner** under **Options and Settings**, and your field should come preselected.

```
<script language="JavaScript">
<!--
window.onload = function()
{
    var commentLevelSelect = document.getElementById("commentLevel");
    if (commentLevelSelect)
    {
        commentLevelSelect.value = 'group:jira-administrators';
    }
}
//-->
</script>

<style>
.alertHeader{display:none;}
</style>
```

Of course, you need to change the `commentLevelSelect.value` from `group:jira-administrators` to the one you want.

I have a GenericValue issue. How do I convert this to an Issue object?

I have a GenericValue issue. How do I convert this to an Issue object?

JIRA's API is moving slowly from representing issues as GenericValues (essentially untyped hashmaps) to the Issue interface). As such, you may find yourself having a GenericValue, but needing an Issue to pass to some more recent part of the API.

Note: often there are two methods available, one returning a GenericValue (eg. called `getIssue`) and another returning an Issue (eg. called `getIssueObject`). You may be able to avoid the conversion by picking the right method.

If you find yourself with a GenericValue, the best way to convert your issue is by declaring an IssueFactory in your object's constructor to set an `issueFactory` field in your object, and then call `issueFactory.getIssue(GenericValue)` to get the Issue.

If you're writing code that isn't managed by Pico container, and so won't have an IssueFactory passed in through the constructor, then you can call the static method IssueImpl.getIssueObject(GenericValue)

Is it possible to have a report plugin only appear for specific projects?

This isn't really possible at the moment. You could work around this by implementing the method

```
boolean showReport();
```

and utilise the fact that JIRA stores the current project in the session. For example, you can find the currently selected project ID by calling.

```
(Long) ActionContext.getSession().get(SessionKeys.SELECTED_PROJECT);
```

You can then use this in your `showReport` method to return true for false depending on the project.

Why am I getting 'Exception looking up public key' exception while building a plugin?

Why am I getting 'Exception looking up public key' exception while building a plugin?

Some plugins such as the RPC Plugin execute unit-testing while 'build' (e.g. `maven jar`) is under progress. As you may not require it sometimes, such error message may turn out to be unpleasant:

```
2006-11-02 16:41:31,375 ERROR [atlassian.license.decoder.LicenseDecoder] Exception looking up
public key: null
java.lang.NullPointerException
at com.atlassian.license.decoder.LicenseDecoder.getPublicKey(LicenseDecoder.java:51)
at com.atlassian.license.decoder.LicenseDecoder.getLicense(LicenseDecoder.java:26)
at com.atlassian.license.LicenseManager.setLicense(LicenseManager.java:127)
at
com.atlassian.jira.rpc.soap.service.TestProjectServiceImpl.setUp(TestProjectServiceImpl.java:108)
at org.jmock.core.VerifyingTestCase.runBare(Unknown Source)
at junit.framework.TestResult$1.protect(TestResult.java:106)
at junit.framework.TestResult.runProtected(TestResult.java:124)
at junit.framework.TestResult.run(TestResult.java:109)
at junit.framework.TestCase.run(TestCase.java:118)
at junit.framework.TestSuite.runTest(TestSuite.java:208)
at junit.framework.TestSuite.run(TestSuite.java:203)
at org.apache.tools.ant.taskdefs.optional.junit.JUnitTestRunner.run(JUnitTestRunner.java:325)
at org.apache.tools.ant.taskdefs.optional.junit.JUnitTask.executeInVM(JUnitTask.java:848)
at org.apache.tools.ant.taskdefs.optional.junit.JUnitTask.execute(JUnitTask.java:556)
at org.apache.tools.ant.taskdefs.optional.junit.JUnitTask.execute(JUnitTask.java:532)
at org.apache.tools.ant.Task.perform(Task.java:341)
at org.apache.commons.jelly.tags.ant.AntTag.doTag(AntTag.java:185)
at org.apache.commons.jelly.impl.TagScript.run(TagScript.java:279)
at org.apache.commons.jelly.impl.ScriptBlock.run(ScriptBlock.java:135)
at org.apache.commons.jelly.TagSupport.invokeBody(TagSupport.java:233)
at org.apache.commons.jelly.tags.core.IfTag.doTag(IfTag.java:88)
at org.apache.commons.jelly.impl.TagScript.run(TagScript.java:279)
at org.apache.commons.jelly.impl.ScriptBlock.run(ScriptBlock.java:135)
at org.apache.maven.jelly.tags.werkz.MavenGoalTag.runBodyTag(MavenGoalTag.java:79)
at
org.apache.maven.jelly.tags.werkz.MavenGoalTag$MavenGoalAction.performAction(MavenGoalTag.java:110) a
com.werken.werkz.Goal.fire(Goal.java:639)
at com.werken.werkz.Goal.attain(Goal.java:575)
at com.werken.werkz.Goal.attainPrecursors(Goal.java:488)
at com.werken.werkz.Goal.attain(Goal.java:573)
at com.werken.werkz.Goal.attainPrecursors(Goal.java:488)
at com.werken.werkz.Goal.attain(Goal.java:573)
at org.apache.maven.plugin.PluginManager.attainGoals(PluginManager.java:671)
at org.apache.maven.MavenSession.attainGoals(MavenSession.java:263)
at org.apache.maven.cli.App.doMain(App.java:488)
at org.apache.maven.cli.App.main(App.java:1239)
at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
at java.lang.reflect.Method.invoke(Method.java:324)
at com.werken.forehead.Forehead.run(Forehead.java:551)
at com.werken.forehead.Forehead.main(Forehead.java:581)
2006-11-02 16:41:31,375 WARN [com.atlassian.license.LicenseManager] Attempt to set invalid
license. Ensure that you are calling setLicense(license, appName) - not (appName, license)
java.lang.RuntimeException: Exception getting verification from file - possible classloader
problem, or corrupt JIRA installation
```

To have a smooth build, you may like to turn unit-testing off:

```
maven jar:install -Dmaven.test.skip=true
```

JIRA Developer Forums

The JIRA Developer Forum is a place for the discussion of extending and customising JIRA. There are two ways to join the discussion:

- Read the web-based forum
- Join the mailing-list

Forum Guidelines

The developer forum is set up for the discussion of:

- JIRA development: Plugins, themes or JIRA source customisation
- JIRA's internal and remote APIs
- Automation of tasks in JIRA
- Announcement of new JIRA developer releases

- Announcement of new plugin releases
- Requests for plugins or customisation services
- Complaints that JIRA have broken the plugin APIs *again*

The following are discouraged:

- Requests for support setting up or running JIRA should be directed to http://support.atlassian.com
- Bug-reports should be submitted to http://jira.atlassian.com (If the bug is specific to plugin development or JIRA's internal APIs, you can discuss it on the developer forum, but **PLEASE** submit a bug as well!)
- Questions about using, running or administering JIRA should be directed to The general JIRA forum
- It's OK to respond to requests for professional services on the forum, or to plug your business in plugin announcements or your signature, but please don't just post advertisements.

The Developer FAQ

Some questions come up on the forum a lot. Make sure you've checked the JIRA Developer FAQ first.

About the Participants

When taking part in the forum, please keep in mind that JIRA licenses do **not** include a guaranteed level of developer support. The JIRA development team follows and contributes to the forum because it's important to us to have a healthy ecosystem of third-party developers, and because we love seeing the cool stuff that our customers and partners come up with. That said, we can't respond to every request, and developers are also expected to help themselves by reading the available documentation, the API, and occasionally even looking at the JIRA source-code.

Also keep in mind that a lot of the people on the list don't work for Atlassian at all, and are answering questions because they're nice people.

Contributing to the JIRA Documentation

Would you like to share your JIRA hints, tips and techniques with us and with other JIRA users? We welcome your contributions.

On this page:

- Tweeting your Hints and Tips - Tips via Twitter
- Blogging your Technical Tips and Guides - Tips of the Trade
- Contributing Documentation in Other Languages
- Updating the Documentation Itself
  - Getting Permission to Update the Documentation
  - Following our Style Guide
  - How we Manage Community Updates

Tweeting your Hints and Tips – Tips via Twitter

Do you have hints and tips about your JIRA bug tracker to share with the world? Even more, would you like to see your tips appear on a page in the Atlassian documentation? Just tweet with the hash tag "`#JIRATips`" and see your hint appear in our documentation. Then grab a **badge for your blog!** More...

Blogging your Technical Tips and Guides – Tips of the Trade

Have you written a blog post describing a specific configuration of JIRA or a neat trick that you have discovered? Let us know, and we will link to your blog from our documentation. More....

Contributing Documentation in Other Languages

Have you written a guide to JIRA in a language other than English, or translated one of our guides? Let us know, and we will link to your guide from our documentation. More....

Updating the Documentation Itself

Have you found a mistake in the documentation, or do you have a small addition that would be so easy to add yourself rather than asking us to do it? You can update the documentation page directly.

Getting Permission to Update the Documentation

Our documentation wiki contains developer-focused documentation (such as API guides, plugin and gadget development guides and guides to other frameworks) as well as product documentation (user's guides, administrator's guides and installation guides). The wiki permissions are different for each type of documentation.

- If you want to update the Developer Network or other developer-focused wiki spaces, just sign up for a wiki username then log in and make the change.

- If you want to update the JIRA product documentation, we ask you to sign the Atlassian Contributor License Agreement (ACLA) before we grant you wiki permissions to update the documentation space. Please read the ACLA to see the terms of the agreement and the documentation it covers. Then sign and submit the agreement as described on the form attached to that page.

Following our Style Guide

Please read our short guidelines for authors.

How we Manage Community Updates

Here is a quick guide to how we manage community contributions to our documentation and the copyright that applies to the documentation:

- **Monitoring by technical writers.** The Atlassian technical writers monitor the updates to the documentation spaces, using RSS feeds and watching the spaces. If someone makes an update that needs some attention from us, will make the necessary changes.
- **Wiki permissions.** We use wiki permissions to determine who can edit the various types of documentation spaces.
  - Developer documentation (API guides, plugin development and gadget development): Anyone can edit these spaces, provided they have signed up for a wiki username and logged in to the wiki.
  - Product documentation (user's guides, administrator's guides, installation guides): We ask people to sign the Atlassian Contributor License Agreement (ACLA) and submit it to us. That allows us to verify that the applicant is a real person. Then we give them permission to update the documentation.
- **Copyright.** The Atlassian documentation is published under a Creative Commons 'cc-by' license. Specifically, we use a Creative Commons Attribution 2.5 Australia License. This means that anyone can copy, distribute and adapt our documentation provided they acknowledge the source of the documentation. The cc-by license is shown in the footer of every page, so that anyone who contributes to our documentation knows that their contribution falls under the same copyright.

RELATED TOPICS

Tips of the Trade
Author Guidelines
Atlassian Contributor License Agreement

Tips of the Trade

Below are some links to external blog posts and articles containing technical tips and instructions on setting up and using JIRA. This page presents an opportunity for customers and community authors to share information and experiences.

The references here are links to technical 'how to' guides written by bloggers who use JIRA. For feature tours, solution tours and other information about bug and issue trackers, please refer to the Atlassian website and to our evaluator resources.

> **Please be aware that these are external blogs and articles.**
> Most of the links point to external sites, and some of the information is relevant to a specific release of JIRA. Atlassian provides these links because the information is useful and relevant at the time it was written. Please check carefully whether the information is still relevant when you read it, and whether it is relevant to your version of JIRA. Unless explicitly stated, Atlassian does not offer support for third-party extensions or plugins. The information in the linked blog posts has not been tested or reviewed by Atlassian. We recommend that you test all solutions on a **test** server before trying them on your production site.

On this page:

- JIRA 4 Linux Administrator's Guide and Workflow Management
- Install JIRA on RHEL5, Single Tomcat with AJP and MySQL
- JIRA Groups and JIRA Project Roles
- 'Send reminder on' custom field for Jira
- User Activity Statistics
- Showing custom fields in 'sub-task' columns
- Using User Properties
- Making it easier to maintain JIRA workflows
- Jira Workflow Report Update
- NetBeans 6.7 RC1 - and JIRA support (beta)
- JIRA To Omnifocus Script
- Update JIRA-issues with OmniFocus
- Git branches to handle contributor patches
- Setting issue security level by issue type
- Unique Issue ID Across Projects

Installation

JIRA 4 Linux Administrator's Guide and Workflow Management
 	
• By: James Intriglia, on 'Getting Things Done in a Virtual World'
• About — This article covers the following topics:
  ◦ Installing JIRA on different flavours of Linux with additional sections on how to configure and administer JIRA (This is a PDF document, whose link can be found at the end of this page.)
  ◦ JIRA workflow diagrams speeding up JIRA application development
• Date: May 2010
• Related documentation: JIRA Installation and Upgrade Guide
 	
Install JIRA on RHEL5, Single Tomcat with AJP and MySQL
 	
• By: Brett Ryan, on the 'JIRA Community Space'
• About: How to install JIRA on Red Hat Enterprise Linux 5, using Apache Tomcat behind an Apache HTTP Server with AJP and MySQL
• Date: 9 April 2010
• Related documentation: JIRA Installation and Upgrade Guide
⚠ Please be aware that this guide contains advanced procedures that should only be attempted by individuals who are familiar with configuring Apache Tomcat, Apache HTTP Server and AJP on Linux.

Administration
JIRA Groups and JIRA Project Roles • By: Matt Doar, on blog 'jiradev.blogspot.com' • About: How to set up JIRA permissions for specific projects • Date: 27 September 2010 • Related documentation: Managing Groups, Managing Project Roles ***'Send reminder on' custom field for Jira*** • By: Sam Haldane, on blog 'blog.samhaldane.com' • About: How to set up JIRA to send issue reminders to users on specified dates • Date: 17 August 2009 • Related documentation: Adding a Custom Field, Saving Searches ('Issue Filters') ***User Activity Statistics*** • By: Zaccary Craven, on blog 'Tips and tricks for JIRA administrators' • About: How to show a list of all usernames along with the number of times each user has created a comment • Date: 19 January 2009 • Related documentation: Adding the Issue Statistics Gadget ***Showing custom fields in 'sub-task' columns*** • By: Zaccary Craven, on blog 'Tips and tricks for JIRA administrators' • About: How to show the values of subtask custom fields on your issue screens • Date: 8 December 2008 • Related documentation: Custom fields ***Using User Properties*** • By: Matt Doar, on blog 'Consulting Toolsmiths' • About: How to add, display and filter the user properties with the JIRA Toolkit plugin • Date: 20 February 2008 • Related documentation: Managing Users

Workflow
Making it easier to maintain JIRA workflows • By: Matt Doar, on blog 'Consulting Toolsmiths' • About: How to display the name of the screen used by each transition in a workflow in one place • Date: 1 July 2009 • Related documentation: Configuring Workflow ***Jira Workflow Report Update*** • By: Jamie Echlin, on the 'onresolve team blog' • About: Visualising JIRA workflows, with hints about a common problem when defining resolutions in JIRA workflows • Date: 19 December 2008 • Related documentation: Configuring Workflow

Integration with Other Tools
NetBeans 6.7 RC1 - and JIRA support (beta) • By: Fabrizio Giudici, on 'Fabrizio Giudici's Blog' • About: How to get JIRA integration in NetBeans 6.7 RC1 • Date: 1 June 2009 ***JIRA To Omnifocus Script*** • By: David Martinez, on blog 'Hackerdude' • About: A script that logs into JIRA and creates OmniFocus tasks for each of the JIRA items that are assigned to you, so they sync to your Omnifocus for iPhone, you only have to keep track of one inbox, etc. • Date: 4 March 2009 ***Update JIRA-issues with OmniFocus*** • By: Alain Petignat, on blog 'sequenz' • About: Updating JIRA fields (time estimate, due date and assignee) directly from OmniFocus • Date: 12 April 2009

Development

Git branches to handle contributor patches
• By: Julien Ponge, on "JPz'log"
• About: Managing patches in pending state via Git, SVN and JIRA
• Date: 4 December 2008
 	
Setting issue security level by issue type
• By: Jamie Echlin, on the 'onresolve team blog'
• About: Two ways to set JIRA issue security levels by issue type
• Date: 5 August 2008
• Related documentation: Configuring Issue Level Security
 	
Unique Issue ID Across Projects
• By: Surya Suravarapu, on 'Surya Suravarapu's Blog'
• About: A plugin that allows you to have unique issue IDs across all your JIRA projects
• Date: 14 July 2009
• Related documentation:
    ◦ Changing the Issue Key format
    ◦ Change History

Have you written a technical tip for JIRA?
Add a comment to this page, linking to your blog post or article. We will include it if the content fits the requirements of this page.

Feedback?
Your first port of call should be the author of the linked blog post. If you want to let us know how useful (or otherwise) a linked post is, please add a comment to this page.

Other Sources of Information

JIRA documentation
Evaluator resources
Atlassian website
Atlassian forums
Atlassian blog
JIRA plugins

Tips via Twitter

This page displays a continuously-updated list of tweets from Atlassians and others, giving hints and tips about JIRA issue tracker. Anyone can write a tip and have it show on this page. The live Twitter stream shows recent tweets containing the word 'JIRATips'or the tag '#JIRATips'.

Want to join in? Just tweet with the tag '`#JIRATips`' somewhere in the text. Then grab a badge for your blog. 🙂

[Viewing the Tweets in Twitter] [Adding a JIRA Tweets Badge to your Blog] [Adding your own Tip]

Please be aware that anyone can tweet anything.
Atlassian does not monitor the tips in this Twitter stream. Anyone can tweet anything they like. We display these tips because we believe most people will do the right thing and tweet good tweets. Please check that a tweet is relevant to you before following its advice.

Viewing the Tweets in Twitter

If you prefer, you can view the search in Twitter itself.

Adding a JIRA Tweets Badge to your Blog

Would you like to let other people know that you tweet your JIRA tips? Use the code samples below to add a badge to your blog or another social site.

Choose one of these options to add the badge:

- **Badge only**
  Copy the code below and paste it into your blog to include just the badge with a link to this documentation page:

```
<a
href="http://atlss.in/JIRATips?utm_source=jira-tips-badge&utm_medium=badge&utm_campaign=techwr
title="Tips via Twitter for JIRA issue tracker"><img
src="http://confluence.atlassian.com/download/attachments/222200745/Twitter-Tips-JIRA.png"
alt="Tips via Twitter for JIRA issue tracker" border="0" ></a>
```

  This is what you will get:

- **Badge and words**
  Copy the code below and paste it into your blog to include the badge and some words encouraging other people to tweet too:

```
<a
href="http://atlss.in/JIRATips?utm_source=jira-tips-badge&utm_medium=badge&utm_campaign=techwr
title="Tips via Twitter for JIRA issue tracker"><img
src="http://confluence.atlassian.com/download/attachments/222200745/Twitter-Tips-JIRA.png"
alt="Tips via Twitter for JIRA issue tracker" border="0" ></a>
<p>Got a JIRA tip? <a href="http://twitter.com/home?status=My+tip+%23JIRATips" title="Tweet
at Twitter">Tweet it now</a> then <a
href="http://atlss.in/JIRATips?utm_source=jira-tips-badge&utm_medium=badge&utm_campaign=techwr
title="Tips via Twitter for JIRA issue tracker">see it in the JIRA docs</a>.</p>
```

This is what you will get:

Got a JIRA tip? Tweet it now then see it in the JIRA docs.

Adding your own Tip

Quick guide to tweeting a tip
Just tweet with the word '**`#JIRATips`**' somewhere in the text. Your tweet will appear in the Twitter stream on this page.

Would you like to share your information and experiences via Twitter and have your tweet appear on this page? **Awesome!** Here are the full instructions.

To tweet a JIRA tip,

1. Go to Twitter.com in your browser.
2. If you already have a Twitter username, sign in to Twitter now. If you do not have a Twitter username, sign up for one and follow the Twitter instructions to confirm your account details.
3. Enter your tip into the Twitter text box labelled '**What's happening**'. Note that your tip can contain a maximum of 140 characters:
   - Type the words for your tip.
   - If you want people to click through to a web page to see more details about your tip, enter a web address. If the web address is long, you can convert it to a shortened address at bit.ly or one of the other web services that offer URL shortening.
   - Include the key word `#JIRATips` somewhere in your tweet. This will ensure that your tip appears in the Twitter stream on this documentation page.
4. Click '**Tweet**' to send your tweet.
5. Refresh this documentation page to see your tweet appear. It may take a few minutes, depending on the volume of tweets that Twitter is handling.

Other Sources of Information

Tips of the Trade
JIRA documentation
Evaluator resources
Atlassian website
Atlassian forums
Atlassian blog
JIRA plugins

JIRA Documentation in Other Languages

Below are some links to JIRA documentation written in other languages. In some cases, the documentation may be a translation of the English documentation. In other cases, the documentation is an alternative guide written from scratch in another language. This page presents an opportunity for customers and community authors to share documentation that they have written in other languages.

Please be aware that these are external guides.
Most of the links point to external sites, and some of the information is relevant to a specific release of JIRA. Atlassian provides these links because the information is useful and relevant at the time it was written. Please check carefully whether the information is still relevant when you read it, and whether it is relevant to your version of JIRA. The information in the linked guides has not been tested or reviewed by Atlassian.

On this page:

- Manual de administración JIRA 3.13
- Handleiding JIRA
- JIRA

Spanish

Manual de administración JIRA 3.13

- By: Rocío Navarro Lacoba, published in the JIRA Community space on this wiki
- Topic: JIRA Administration Guide, a translation of the English JIRA 3.13 Administration Guide
- JIRA version: 3.13
- Date added: 25 November 2010
- Latest related English documentation: JIRA Administrator's Guide

Dutch

Handleiding JIRA

- By: Bart Wesdorp of theFactor.e, published in the JIRA Community space on this wiki
- Topic: JIRA User Guide, a quick-start guide to JIRA.
- JIRA version: Based on JIRA 4.1.
- Date added: 8 December 2010
- Latest related English documentation: JIRA User's Guide

Japanese

JIRA

- **By:** Go2Group and Atlassian, on the Atlassian Japan wiki
- **Topic:** JIRA user's guide, administrator's guide and developer's guide
- **JIRA version:** 4.0
- **Date added:** 14 December 2010
- **Latest related English documentation:** JIRA 4.3

Adding Your Own Guide to this Page

Have you written a guide for JIRA in another language? Add a comment to this page, linking to your guide. We will include it if the content fits the requirements of this page.

Giving Feedback about One of the Guides

If you have feedback on one of the guides listed above, please give the feedback to the author of the linked guide.

If you want to let us know how useful (or otherwise) one of these guides is, please add a comment to this page.

Other Sources of Information

JIRA documentation
Atlassian website
Atlassian blog
JIRA plugins

GreenHopper for JIRA Guide

GreenHopper 5.4 has been released! Read the release notes for more information on the features that have been added.

GreenHopper is a JIRA plug-in that adds a broad collection of agile project management capabilities to JIRA, and extends JIRA as a powerful platform for agile development teams. GreenHopper simplifies the planning and organisation of tasks, workflows and reporting for agile teams.

Please refer to the GreenHopper documentation for more information.